



VI.

BOTANY.

BY WARREN UPHAM.

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THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.

N. H. WINCHELL, STATE GEOLOGIST.

CATALOGUE

OF THE

FLORA OF MINNESOTA,

INCLUDING ITS

PHÆNOGAMOUS AND VASCULAR CRYPTOGAMOUS PLANTS,

INDIGENOUS, NATURALIZED, AND ADVENTIVE.

BY WARREN UPHAM.

Part VI of the Annual Report of Progress for the Year 1883.

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THE FLORA OF MINNESOTA.

The following catalogue of the plants of Minnesota is presented as a report of progress in this department of the geological and natural history survey of the state. It includes not only the observations of the state geologist and his assistants upon this survey, but also those of earlier botanic collectors and explorers, enumerating all the species that are known to have been found in Minnesota by all observers up to the present time. Grateful mention of the various sources, in chronologic order, from which this list is largely a compilation, is therefore its most appropriate preface.

Hennepin, Carver, Pike, and other early explorers of this state, occasionally refer to some of its forest trees, wild fruits and berries, and plants used for food or medicine by the Indians. Carver, who traveled to the upper part of the Minnesota river in 1767, wrote of the region through which it flows:—"Wild rice grows here in great abundance; and every part is filled with trees bending under their loads of fruits, such as plums, grapes, and apples; the meadows are covered with hops, and many sorts of vegetables; whilst the ground is stored with useful roots, with angelica, spikenard, and ground-nuts." On the uplands bordering the river he saw "such amazing quantities of maples, that they would produce sugar sufficient for any number of inhabitants."

The first published list of plants, so far as known to the writer, that includes species found in Minnesota, is in the *American Journal of Science*, vol. iv, 1822, pages 56 to 69, entitled "Notice of the Plants collected by Professor D. B. Douglass, of West Point, in the expedition under Governour Cass, during the summer of 1820, around the Great Lakes and the upper waters of the Mississippi: the arrangement and description, with illustrative remarks, being furnished by Dr. John Torrey." This includes 115 species, 26 of which were from Minnesota.

The appendix of Keating's *Narrative of Major Long's Expedition* in the year 1823, along the Minnesota river and the Red river of

the North to lake Winnipeg, and thence by the lake of the Woods and Rainy lake to lake Superior, contains in pages 105 to 123, "a Catalogue of Plants collected in the North-western Territory by Mr. Thomas Say", who accompanied this expedition. These plants were determined and the catalogue prepared for publication by Lewis D. de Schweinitz, excepting the first five species which were by Nuttall. The flowering plants and ferns in this list include 124 species, 30 of which are referred definitely to Minnesota. Both the foregoing lists are arranged according to the Linnæan system.

In Schoolcraft's *Narrative of an Expedition through the upper Mississippi to Itasca lake, in 1832*, pages 160 to 165 are entitled "Localities of Plants collected in the Northwestern Expeditions of 1831 and 1832; by Douglass Houghton, M. D., Surgeon to the Expeditions." The genera in this list are arranged alphabetically, and include 247 species, 115 of which are referred to this state.

Nicollet's report, describing the basin of the upper Mississippi river, from explorations during the years 1836 to 1839, contains in pages 143 to 165, a "Catalogue of plants collected by Mr. Charles Geyer, under the direction of Mr. J. N. Nicollet, during his exploration of the region between the Mississippi and Missouri rivers: by Professor John Torrey, M. D." Of the 446 species in this catalogue, about 60 were collected in Minnesota, most of the others being from Dakota.

Owen's geological report presents in its appendix, in pages 606 to 622, a "Systematic Catalogue of Plants of Wisconsin and Minnesota, by C. C. Parry, M. D., made in connexion with the Geological Survey of the Northwest, during the season of 1848." The author states that "the number of plants comprised in this list is seven hundred and twenty-seven, included in one hundred and six natural orders." Many of them are particularly mentioned as occurring in this state, and often interesting descriptive notes are added, some of which are quoted in the following pages.

The next contribution to our knowledge of the flora of the state is by Mr. Thomas Clark, on the "Botany of the Northeastern Geological District of Minnesota", forming pages 73 to 82 of the report of the state geologist, Aug. H. Hanchett, M. D., in 1865. About a hundred species are here enumerated. Some thirty of them, however, only occur in cultivation, being mostly the common grains and garden vegetables, noted to show the agricultural capability of the region. The other species of this list include chiefly the most important forest trees, and such shrubby and herbaceous plants as seemed of special interest because of their fruit or medi-

cial qualities, accompanied with remarks respecting the size of the trees, and the abundance and geographical limits of the native species.

The most valuable of all the publications concerning the botany of Minnesota, and the only attempt, before the present, to give a complete list, so far as known, of our flora, was "a Catalogue of the Plants of Minnesota, by I. A. Lapham, LL. D., of Milwaukee, Wis.", which he prepared in 1865. Eight years later, soon after the initiation of the present survey of the state, he generously sent this manuscript to professor Winchell, as state geologist. It was published in the report of the State Horticultural Society for 1875. In the preface, Dr. Lapham states that he had consulted the lists of plants already enumerated from Douglass to Parry; but that his catalogue, nevertheless, rests chiefly upon his "own observations and collections made during several excursions into the State; one of which, in the spring of 1857, was extended to the waters of the Red River of the North." Dr. Lapham refers to his additional sources of information, as follows:—"In 1858 Mr. Robert Kennicott made collections of plants and animals in the Red River country which are preserved by the Northwestern University at Evanston, Illinois. Mr. Charles A. Hubbard collected expressly for me a large number of plants, including mosses and lichens, while on a tour from Lake Superior to Lake Winnipeg and Pembina, as well as while on his return by way of St. Paul. In 1861 Mr. T. J. Hale, while prosecuting geological investigations along the Mississippi river in connection with the Wisconsin State survey, made some collections of plants in Minnesota, a list of which he has kindly furnished to me. Several species are introduced upon his authority." The flowering plants and vascular cryptogams in this catalogue comprise 896 species, besides which it also enumerates 55 species of mosses, liverworts and lichens found in Minnesota. It is without notes, in respect to the part of the state where plants of limited range occur, and does not indicate whether the species are common or rare.

Mr. George M. Dawson's report to the British North American Boundary Commission, on the *Geology and Resources of the region in the vicinity of the Forty-ninth Parallel, from the Lake of the Woods to the Rocky Mountains*, published in 1875, contains in pages 351 to 379, a list of plants collected in this survey during the summers of 1873 and 1874, with notes of their localities and dates of collection, stating whether they were found in flower or in other stages of growth. This enumerates 636 phænogams and

vascular cryptogams, of which 289 were collected on the northern border of Minnesota, from the lake of the Woods to the Red river. Twenty-three species of mosses and lichens were also collected on this part of the international boundary. The rushes, sedges and grasses of this list were determined by Prof. John Macoun; by whom, as also by Mr. Dawson, some additional notes respecting their identifications of species and more recent collections in the same region and thence eastward to lake Superior, have been kindly furnished.

Another collection of plants, numbering about 300 species, was made on the same survey, along its extent from the Red river to the Rocky mountains, in connection with the U. S. Northern Boundary Commission, by Dr. Elliott Coues, who submitted them to Prof. J. W. Chickering for determination and report. With these were also incorporated the species of Mr. Dawson's list (excepting mosses and lichens), so far as they were not included in Dr. Coues' collection, making a catalogue of 692 species, besides several varieties; which was published in 1878 in the *Bulletin of the United States Geological Survey*, vol. iv, pages 801 to 830. Ninety-six species are stated to have been found at Pembina, situated on the Red river, adjoining Minnesota.

A few species of Carex, collected by Sir John Richardson at Rainy lake and the lake of the Woods, and determined by Dr. Francis Boott, are included in the botanical appendix of Richardson's *Arctic Expedition in Search of Sir John Franklin*; which also gives much valuable information as to the geographic limits northward of many of our plants.

A list of the ferns of Minnesota, collected by Miss E. W. Cathcart, comprising thirty species and three varieties, was published in 1877 in the *Bulletins of the Minnesota Academy of Natural Sciences*, vol. i, pages 303 and 304. This list includes two especially interesting species, the very rare Phegopteris calcarea, Féé, and Woodsia scopulina, Eaton, which here reaches its eastern limit.

The *Report of the Minnesota Horticultural Society for 1884* contains, in pages 83 to 116, a valuable paper by Miss Sara Manning, on "The Wild Flowers of the Lake Pepin Valley", including a catalogue of 504 species.

In the same report, on pages 361 to 367, are "Notes on the Flora of western Dakota and eastern Montana adjacent to the Northern Pacific railroad," by John B. Leiberg, in which are frequent incidental references to Minnesota.

In the annual reports of the present *Geological and Natural Hist-*

ory Survey of Minnesota, notices of the botany of portions of the state have been published as follows:—

In the first annual report, for the year 1872, a "List of Plants, mostly herbaceous, in the neighborhood of St. Anthony, Minnesota; principally found on the University Grounds. 1869—1872. By Professor E. H. Twining." This includes 230 species.

In the report for 1873, lists of the trees and shrubs of the Big Woods, and of Big Stone lake, by Prof. Winchell.

In the report for 1874, lists of the trees and shrubs of Freeborn and Mower counties, by Prof. Winchell.

In the report for 1875, the trees and shrubs of Fillmore county, by Prof. Winchell; and of Olmsted, Dodge and Steele counties, by Prof. M. W. Harrington.

In the report for 1876, the trees and shrubs of Houston and Hennepin counties, by Prof. Winchell.

In the report for 1877, the trees and shrubs of Ramsey county, by Prof. Winchell; and of Rice county, by Prof. L. B. Sperry.

In the report for 1878, pages 35 to 46, "The Plants of the North Shore of Lake Superior. By B. Jani." This is a list, with numerous notes of localities and relative abundance, and occasional descriptive remarks, of 218 species collected by Mr. Juni, in the summer of that year, in connection with the party there engaged in geological exploration; with 58 additional species, collected in the vicinity of the University, at Minneapolis, including 25 species of Carex, while 23 others of this genus are in the list preceding.

In the report for 1879, pages 138 to 149, another list of "Plants of the North Shore of Lake Superior, collected by T. S. Roberts", in connection with the geological survey in that year, from July 26 to Sept. 2; including 220 species, with frequent notes of locality, relative abundance, and other description; 100 of these species being in addition to Mr. Juni's list.

And, in the report for 1880, pages 201 to 216, lists of 76 species of forest trees, 31 shrubs, and 259 herbaceous plants, identified by Mr. O. E. Garrison in the region of the head-waters of the Crow Wing river, the White Earth reservation, Itasca lake, and the upper Mississippi, during an exploration in the summer of that year for the Forestry Department of the United States Census.

Besides these publications, very important contributions of notes and specimens have been received from botanists throughout the state. Mr. John B. Leiberg, of Mankato, supplied a list of about 750 species, collected in 1882, mostly in Blue Earth county, but

including also a considerable number from the southwest part of the state. Many specimens collected in Blue Earth county, and others from Dakota and Montana, have been donated by Mr. Leiberg to the State Museum. A list of about 500 species, observed chiefly in the vicinity of Minneapolis by the Young Naturalists' Club, was communicated by Mr. Thomas S. Roberts, by whom nearly all these species were determined, others being by Clarence L. Herrick, F. S. Griswold, and R. S. Williams. I am also indebted to Mr. Roberts for much further assistance in the preparation of the following catalogue. Manuscript lists, to which references are frequently made in stating the geographic range of species or localities of rare or local plants, were received from Mr. George B. Aiton, of Owatonna; Miss Franc E. Babbitt, of Little Falls; Miss F. S. Beane, of Faribault; Mrs. C. H. Bennett, of Pipestone City; Mrs. A. C. Blaisdell, of Saint Cloud; Mr. and Mrs. C. W. Blake, of Cannon River Falls; Miss Eloise Butler, of Minneapolis; Rev. E. V. Campbell, of Saint Cloud; Mrs. M. C. Carter, of Hesper, Iowa; Miss E. W. Catheart, of Washington, D. C.; Prof. L. W. Chaney, Jr., of Northfield; Mr. R. I. Cratty, of Armstrong's Grove, Iowa; Miss Phebe A. Field, of Stillwater; Mr. Lewis Foote, of Worthington; Mr. O. E. Garrison, of Saint Cloud; Prof. C. J. Gedge, of Moorhead; Mr. H. F. Gibson, of Wabasha; Mr. W. H. Hatch, of Rock Island, Illinois; Dr. V. Havard, surgeon at Fort Pembina, Dakota; Mr. C. L. Herrick, of Minneapolis; Prof. John M. Holzinger, of Winona; Mr. B. Juni, of New Ulm; Mr. J. C. Kassube, of Minneapolis; Dr. and Mrs. H. C. Leonard, of Fergus Falls; Miss Sara Manning, of Lake City; Rev. John Pemberton, of Saint Paul; Mrs. J. W. Ray, of Lake City; Dr. J. H. Sandberg, of Red Wing; Rev. John Scott, of Emerson, Manitoba; Rev. H. M. Simmons, of Minneapolis; Mrs. E. H. Terry, of Saint Paul; and Prof. N. H. Winchell, of Minneapolis. Many observations in respect to the relative abundance and geographic range of species have been also noted by the writer during explorations for this survey.

Though not within the province of this catalogue, it seems desirable to mention here the lists of 775 species of Fungi, by Dr. A. E. Johnson, of Minneapolis, in the *Bulletins of the Minnesota Academy of Natural Sciences*, vol. i. These were nearly all collected by Dr. Johnson within the limits of Hennepin, Ramsey, Wright and Anoka counties. The fifth annual report of this survey, for the year 1876, contains the same, but with the notes somewhat abbreviated, to the number of 558 species, the extent to which the work had been carried at the date of that report. Dr. Johnson has also given much

attention to the study of the fresh-water algæ, determining a large number of species.

Another successful student of fresh-water algæ, especially of the Desmids, is Miss Eloise Butler, of Minneapolis. An article respecting these microscopic plants, by Mr. Francis Wolle, in the *Bulletin of the Torrey Botanical Club* for February, 1883 (vol. x, pages 13 to 21), enumerates eighteen species new to the United States, collected by Miss Butler in the vicinity of Minneapolis, including eight forms (three species and five varieties) new to science.

CONDITIONS DETERMINING THE CHARACTER OF THE FLORA.

In considering the botany of any district, its geographic position, elevation and contour, the climate, and the diverse rocks and soils which it presents, need to be briefly stated, since these circumstances control the development of the flora.

Minnesota lies in the middle of the North American continent, almost midway between the Atlantic and Pacific oceans and between the gulf of Mexico and the Arctic ocean, being distant a thousand miles or more from each of these grand bodies of water. The extent of the state from south to north is 380 miles, and its average width about 220 miles. It lies between $43^{\circ} 30'$ and 49° north latitude, and between 90° and 97° west longitude. Its area is 84,286 square miles.

The topographic features of Minnesota may be briefly summed up for its western three-quarters, as being a moderately undulating, sometimes nearly flat, but occasionally hilly expanse, gradually descending from the Coteau des Prairies and from the Leaf hills, respectively about 2000 and 1700 feet above the sea, to half that height, or from 1000 to 800 feet, in the long flat basin of the Red river valley, and to the same height along the valley of the Mississippi from Saint Cloud to Minneapolis. The only exceptions to this moderately undulating or rolling and rarely hilly contour, are the southeast part of the state where the Mississippi river and its tributaries are enclosed by bluffs from 200 to 600 feet high, and the northwest shore of lake Superior and the part of the state lying north of this lake and east of Vermilion lake. A very bold rocky highland rises 400 to 800 feet above lake Superior, within from one to five miles back from its shore-line, all along the distance of 150 miles from Duluth to Pigeon point, the most eastern extremity of Minnesota; while farther north are many hill-ranges, 200 to 500 feet higher, mostly trending from northeast to southwest or from east to west.

Lake Superior is 602 feet above the sea. The shore of this lake is the lowest land in Minnesota, while its highest land is the Mesabi range, which, south of Vermilion lake and eastward, is found by Prof. Winchell to exceed 2000 feet above sea-level. Itasca lake, the head of the Mississippi, is about 1500 feet above the sea; and this river at the southeast corner of Minnesota, 620 feet. Professor Winchell estimates the average elevation of the entire state to be approximately 1275 feet above the sea.

Climate is the most important of the factors by which a flora is modified, and this depends chiefly on geographic position, elevation and contour, if a sufficiently large area is taken into account. The warmest days of summer in Minnesota have a temperature of about 90° Fahrenheit, but such days are rare; and the greatest cold of winter is — 30° or sometimes — 40°. The annual precipitation of moisture as rain and snow is from 25 to 30 inches. It is distributed somewhat equally throughout the year; damaging droughts or excessive rains seldom occur. In winter the snow in the south half of the state is commonly about a foot deep during two or three months; but farther north it attains an average depth of two or three feet.

The soil throughout the greater part of Minnesota consists of glacial drift, a mixture of clay, sand, gravel and boulders, clay being the principal ingredient, and boulders being usually infrequent. This deposit has been gathered from diverse formations of granite and gneiss, sandstone, limestone, and shales. Enriched at the surface by the decay of vegetation through centuries, the black soil on areas of the glacial drift has ordinarily a depth of one or two feet, and is very fertile. Other varieties of soil are found in tracts of gravel and sand, also generally quite fertile, which in many places border the large rivers and spread widely upon the region drained by the St. Croix and Crow Wing rivers and the upper Mississippi; in the lower alluvial bottomlands, which are mostly overflowed by the highest water of spring; on the cliffs of sandstone and limestone which border the rivers in the southeast part of the state; and on the hills of granite and crystalline schists north of lake Superior. Each peculiarity of soil affords a congenial location for plants which are absent or can not thrive elsewhere.

FOREST AND PRAIRIE.

The most important and conspicuous contrast presented by the vegetation covering different parts of Minnesota, is its division in forest and prairie. Forest covers the northeastern two-thirds of

the state, approximately; while about one-third, lying at the south and southwest, and reaching in the Red river valley to the international boundary, as also the part of this valley farther north to lake Winnipeg, is prairie. The line dividing these areas, having an almost wholly timbered region on its northeast side, and a region on its southwest side that is chiefly grassland, without trees or shrubs, excepting in narrow belts along the larger streams and occasional groves beside lakes, runs as follows. Entering the state from the north about fifteen miles east of Emerson and St. Vincent, it extends south-southeastward to Red Lake Falls, thirty-six miles east of Grand Forks; thence southeast and south, to the east end of Maple lake; thence southwesterly along this lake, and from it south to the Sand Hill river; thence southeasterly to the White Earth Agency; thence southerly, by Detroit and Pelican Rapids, to Fergus Falls, which is situated half-way from the north to the south line of the state; thence southeasterly, in a less direct and regular course, through Douglas, Stearns, Meeker, McLeod and Sibley counties, to the Minnesota river, and along that stream to Mankato and South Bend; thence easterly by Janesville, Waterville and Morristown, to Faribault; thence northerly, turning backward, to Minneapolis and Anoka, the loop thus formed, enclosing Wright, Carver, Scott, Le Sueur, and parts of adjacent counties, being the boundary of the area well known as the Big Woods; thence easterly, passing through Ramsey and Washington counties to Stillwater and Hudson, where it enters Wisconsin.

The Big Woods are principally made up of the following species of trees, arranged by Prof. Winchell in the estimated order of their abundance: white or American elm, basswood, sugar maple, black and bur oaks, butternut, slippery or red elm, soft or silver maple, butternut, white and black ash, iron-wood, wild plum, June-berry, American crab-apple, common poplar or aspen, large-toothed poplar, tamarack (in swamps), box-elder, black cherry, cottonwood (beside rivers and lakes), water beech, willows, hackberry, paper or canoe birch, yellow birch, white oak, and red cedar. Farther northward white, red and jack pines, black and white spruce, balsam fir and arbor-vitæ are conspicuous in the forest, intermingled with deciduous trees. Its shrubs include prickly ash, smooth sumach, frost grape, Virginian creeper, climbing bitter-sweet, red and black raspberries, choke-berry, prickly and smooth gooseberries, black currant, and species of cornel, wolfberry, honeysuckle, elder, viburnum, and hazel-nut.

The most abundant species of grass found upon the prairies of southwestern Minnesota, are as follows: beard-grass (*Andropogon furcatus*, Muhl.), commonly here called "blue-joint," Indian grass (*Chrysopogon nutans*, Benth.), muskit-grass (*Bouteloua racemosa*, Lagasca), and porcupine grass (*Stipa spartea*, Trin.), common on land neither very dry nor very moist; another species of beard-grass (*Andropogon scoparius*, Michx.), and a second muskit-grass (*Bouteloua hirsuta*, Lagasca), common on dry swells; the fresh-water cord-grass (*Spartina cynosuroides*, Willd.), in sloughs, making the principal mass of their hay; and rice cut-grass (*Leersia oryzoides*, Swartz), with the last. The prairies also bear a great variety of flowers, including numerous species of aster, golden-rod, sunflower, blazing-star or button snakeroot, and prairie clover, and the rose, lily, harebell, phlox, gerardia, fringed gentian, and many others. Sometimes the view across miles of the prairie is made yellow and purple by the multitude of sunflowers, blazing-stars, and gerardias.

LIMITS OF SPECIES.

Gradual changes in the flora are observable in crossing the continent either from east to west or from north to south. Many species disappear as the traveler advances, while others, not before present, are met with. A large majority of the plants in the Pacific states are not found east of the Mississippi; and such limitation prevails almost without exceptions between the arctic and tropical zones. The central position of Minnesota therefore makes this a most interesting field for the notation of the limits of species.

Among our forest trees, the white and red pine, arbor-vitæ ("white cedar"), yellow birch, black ash and sugar maple reach their western limit at the east side of the Red river valley.

No tree of exclusively western range extends east into Minnesota, and the only shrubs thus noted are *Elæagnus argentea* (silver-berry), *Enothera albicaulis* and *Amorpha microphylla*; but about fifty herbaceous plants belonging to the flora of the western plains and the Rocky mountains, and not yet known to occur east of the Mississippi river, are found within our limits. These include species of *Ranunculus*, *Aquilegia*, *Vesicaria*, *Linum*, *Astragalus*, *Oxytropis*, *Potentilla*, *Gaura*, *Peucedanum*, *Cymopterus*, *Gutierrezia*, *Aplopappus*, *Grindelia*, *Lepachys*, *Helianthus*, *Gaillardia*, *Senecio*, *Troximon*, *Plantago*, *Pentstemon*, *Orthocarpus*, *Echinospermum*, *Collomia*, *Gentiana*, *Asclepias*, *Suæda*, *Comandra*, *Euphorbia*, *Allium*, *Carex*, *Sporobolus*, *Aristida*, *Buchloe*, *Elymus*, and *Beckmannia*.

A group of species, most notably represented in the pine and heath families, including our three pines, black spruce, balsam fir, tamarack and arbor-vitæ, huckleberry, blueberry, cranberry, snowberry, aromatic wintergreen or checkerberry, Labrador tea, and the clintonia and dwarf cornel, extends through the northeast part of the state to limits approximately coinciding with the Mississippi river, Red lake and the lake of the Woods.

The northern limits of yellow birch, bur oak, sugar maple and basswood here coincide nearly with the international boundary. The red cedar, cottonwood, hornbeam, white, black and red oaks, butternut, bitter-nut or swamp hickory, hackberry, box-elder, frost grape and prickly ash reach their general northern limits in the north half of this state; but several of them, like many herbaceous species of similar range, continue somewhat farther northwestward into Manitoba. The shell-bark hickory, black walnut, red mulberry and Kentucky coffee-tree attain their most northern range in the south half of the state.

The accompanying map shows the portions of Minnesota respectively occupied by forest and prairie, and the approximate limits of many of our trees.*

INTRODUCED PLANTS.

About eight per cent. of the plants growing without cultivation in this state are introduced species, distinguished in the catalogue by being printed in Italics. Most of them are such as follow civilized man, and grow in his cultivated fields and gardens, in spite of all efforts to banish them. Among the most notable introduced weeds in this state may be mentioned mustard, cow-herb and cockle, specially troublesome in wheat-fields; shepherd's purse, purslane, mallow, May-weed, burdock, mullein, pigweeds, tumbleweed, black bindweed, curled or yellow dock, sheep sorrel, hemp, barnyard-grass, and foxtail or pigeon-grass, frequently too plentiful in cultivated ground, about dwellings, by the road-side, or on pasture-land. The ox-eye daisy or white-weed, Canada thistle and cheat or chess are sparingly established, and may become very common bad weeds here, as farther east. It should be added that, besides these immigrants, a considerable number of weeds native to this country are also common, including species of *Lepidium*, *Iva*, *Ambrosia*, *Helianthus* and *Stachys*. Up to the present time, only

* Its method of delineation is similar to that of Dr. Robert Bell's map, recently published by the Geological Survey of Canada, showing the general northern limits of the principal forest trees of Canada.

about half as many naturalized and adventive species are known in Minnesota as in the eastern states, the difference being due to the shorter time since the settlement of this state and the proportionately less numerous opportunities for them to gain a foot-hold here.

PRELIMINARY REMARKS ON THE CATALOGUE.

Under each species is a statement whether it is abundant, common, frequent, infrequent, or rare, and whether its geographic range extends throughout the state or to limits which are indicated approximately; or, when the observations are insufficient for such statement, the localities where the species has been noted are mentioned, with the names of the observers.

The arrangement of families, genera and species strictly follows the fifth edition of Gray's *Manual*; and wherever a synonym replaces any name that occurs in the *Manual*, the latter also is given, enclosed by marks of parenthesis.*

The popular names are mostly such as appear in Gray's *Manual* and Wood's *Class-Book*; but in a few instances other names, in general use in this state, and often specially significant, are inserted.

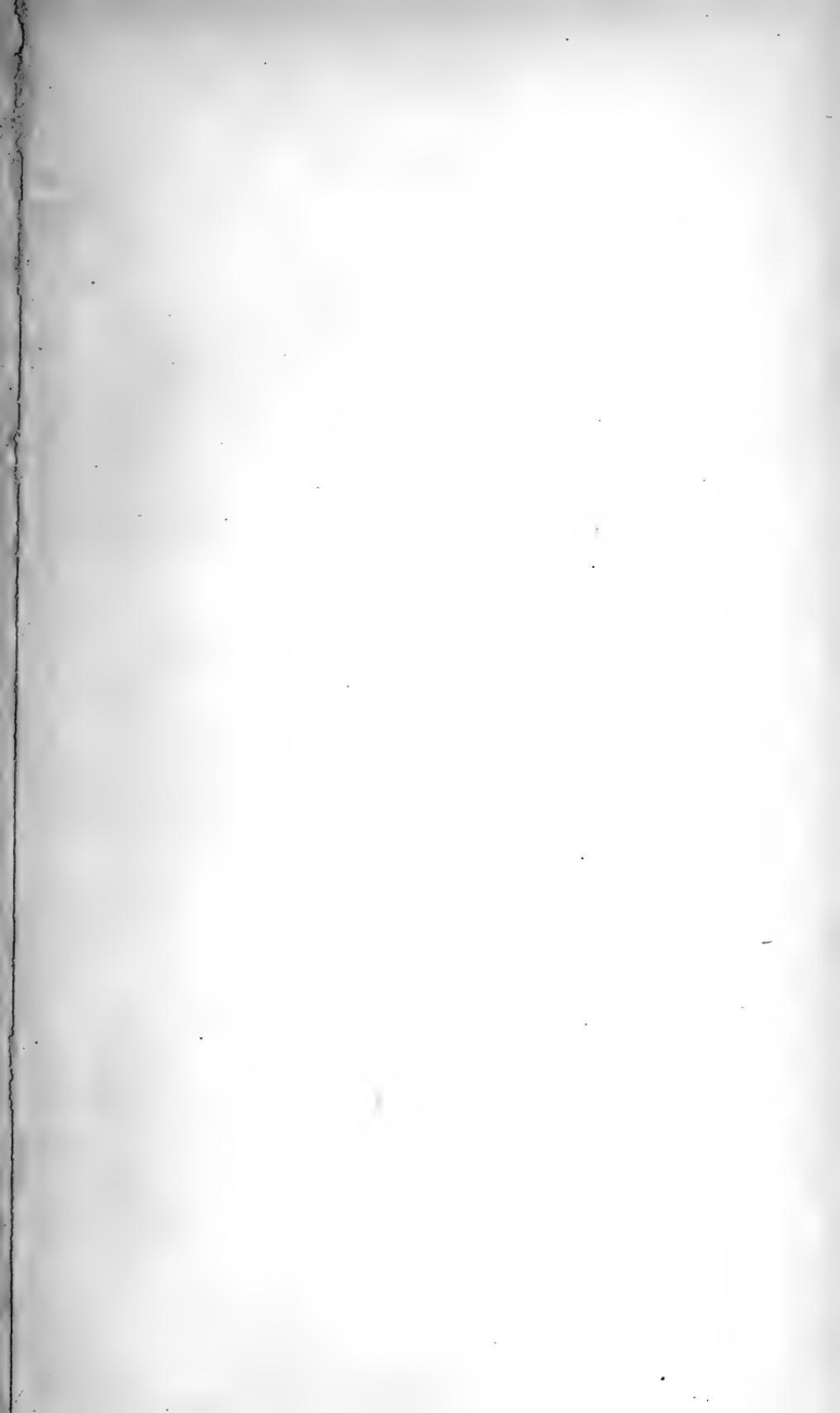
Introduced species are distinguished from the indigenous, as before mentioned, by being Italicized.

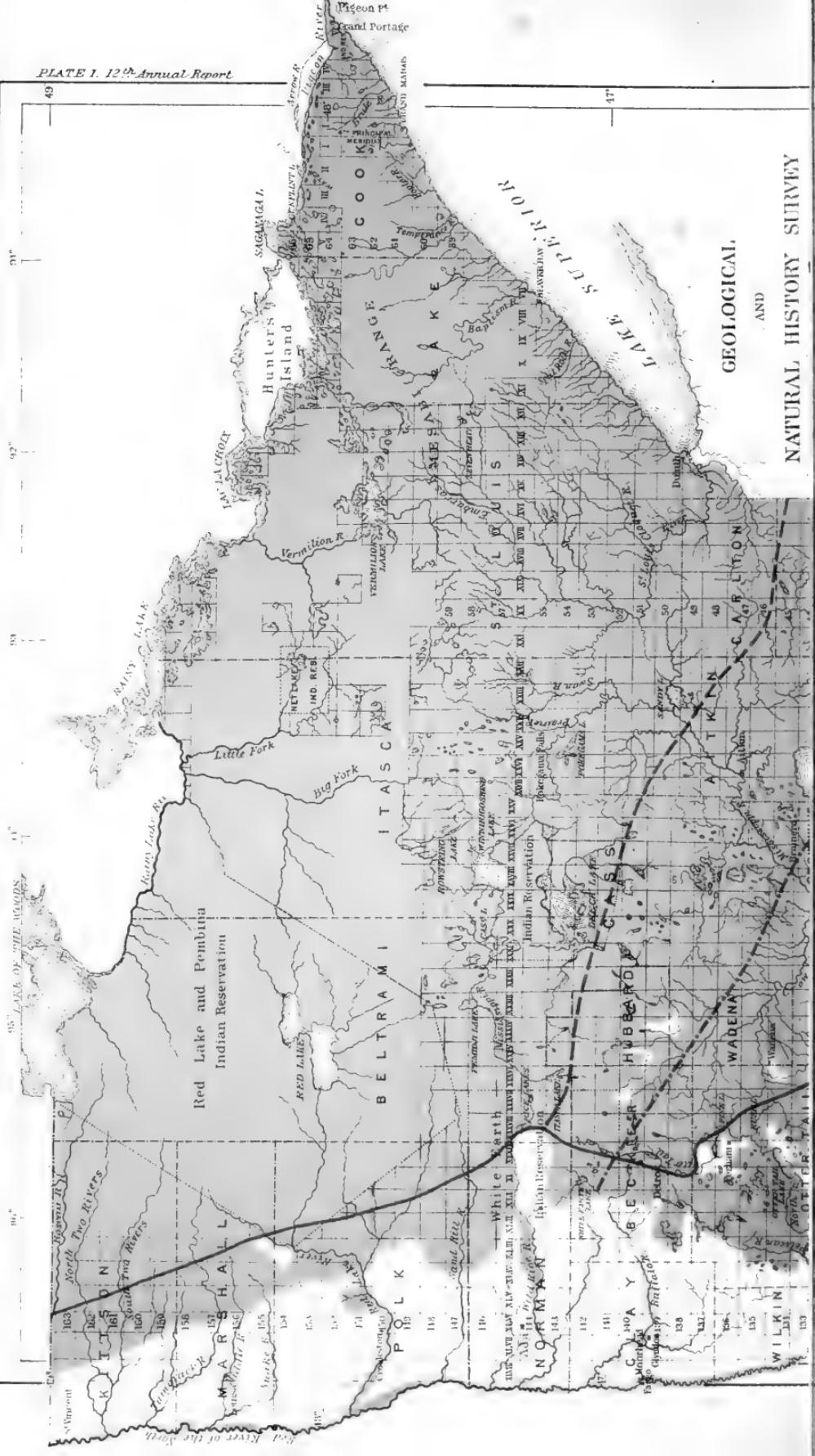
For the species of our flora that are not described in Gray's *Manual*, which only included those found east of the Mississippi, descriptions are quoted from other authorities.† The present work thus supplies, with Gray's *Manual*, the means of identifying all the flowering plants and ferns known to occur in Minnesota.

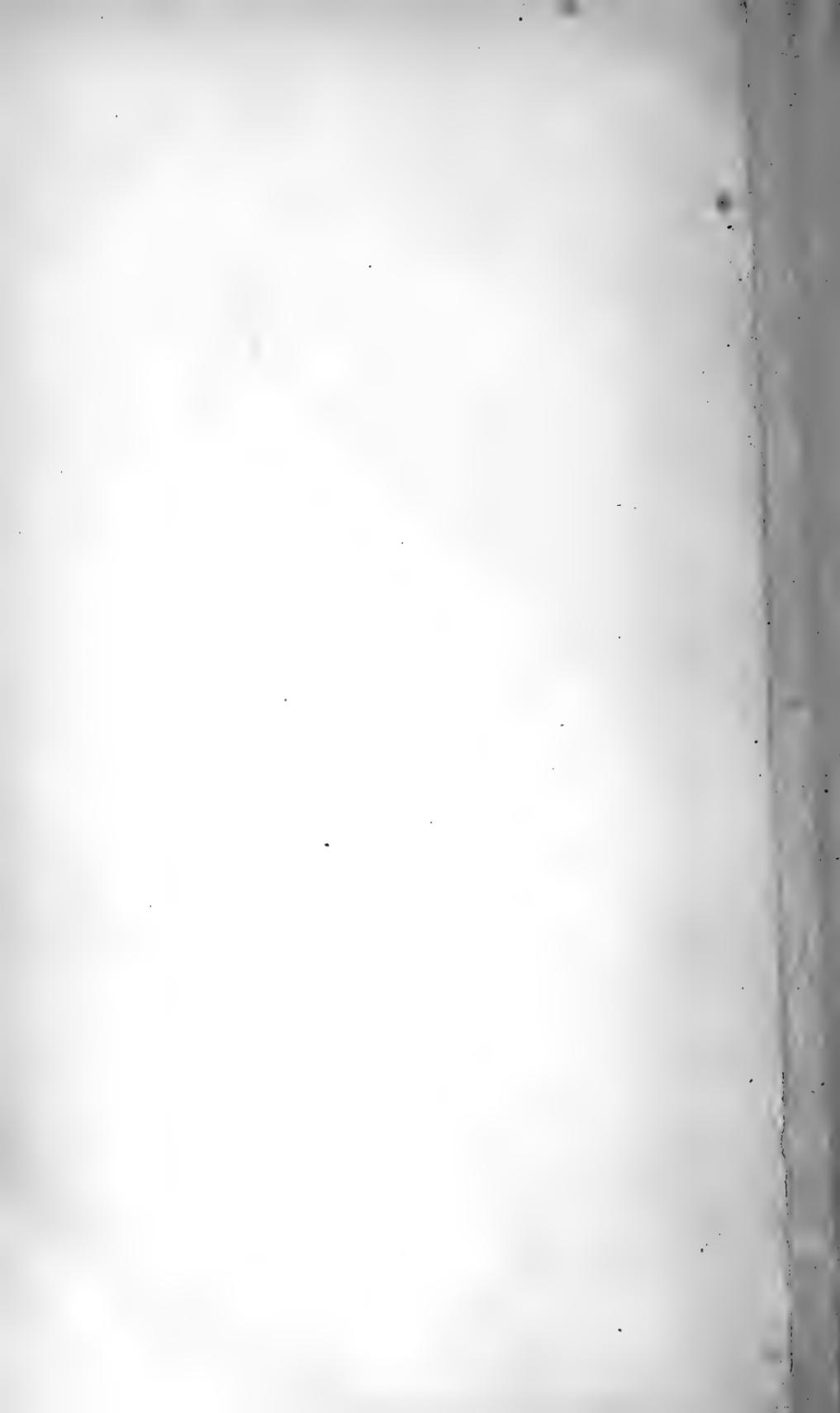
Determinations of numerous difficult species, and notes concerning them, have been kindly supplied by Prof. Asa Gray, Mr. Sereno Watson, Mr. William Boott, Dr. George Engelmann, Mr. M. S. Bebb, Rev. T. Morong, and other specialists; and I am indebted to Dr. George Vasey for the description of the new *Aristida basiramea*, Engelmann, posthumously published.

*The sources of improved nomenclature have been Watson's *Bibliographical Index to North American Botany* (Part I; *Polypetalæ*: 1878); Gray's *Synoptical Flora of North America* (Vol. II, Part I; *Gamopetalæ* after *Compositæ*: 1878); various papers by Professor Gray in the *Proceedings of the American Academy of Arts and Sciences*; Bailey's *Catalogue of North American Carexæ* (1884); Vasey's *Grasses of the United States* (1883); Eaton's *Ferns of North America* (1880); and notes in the *American Naturalist*, the *Botanical Gazette*, and the *Bulletin of the Torrey Botanical Club*.

†Chiefly from Watson's report on the Botany of King's *Exploration of the Fortieth Parallel*; Porter and Coulter's *Synopsis of the Flora of Colorado*; Rothrock's report on the Botany of Wheeler's *Surveys west of the One Hundredth Meridian*; Torrey and Gray's *Flora of North America*; and Gray's *Synoptical Flora*.







CATALOGUE.

RANUNCULACEÆ. CROWFOOT FAMILY.

CLEMATIS, L. VIRGIN'S-BOWER.

C. verticillaris, DC. Virgin's-Bower.

Shady rocks at the head of lake St. Croix, *Parry*; St. Croix Falls, *Miss Field*; lake Pepin, *Miss Manning*; Winona County, *Holzinger*. Rare.

C. Virginiana, L. Common Virgin's-Bower.

Common, or abundant, southward; frequent northward; at Beaver Bay and summit of Black Point mountain north of lake Superior, *Roberts*.

ANEMONE, L. ANEMONE. WIND-FLOWER.

A. patens, L., var. **Nuttalliana, Gray.** Pasque-flower (i. e. Easter-flower). *Pulsatilla*. "Hartshorn-plant." "Headache-plant." "Gosling." "Prairie Smoke." "Crocus."

Abundant in all the prairie portion of the state. Its bruised leaves have a very pungent smell. This earliest flower of spring has received an unusual variety of popular names.

A. decapetala, L. (*A. Caroliniana, Walt.*) Carolina Anemone.

Frequent in the south part of the state, as in Hennepin, Goodhue, Blue Earth and Pipestone counties; extending north to Saint Cloud, *Campbell*, *Mrs. Blaisdell*, and Appleton, Swift county, *Miss Elwell*. South.

A. parviflora, Michx. Small-flowered Anemone.

Minneapolis, *Winchell*; upper Mississippi river, *Garrison*; Red river valley, *Gedge*, North.

A. multifida, DC. Many-cleft Anemone. Red Wind-flower.

Dayton's bluff, Saint Paul, and between Saint Paul and Fort Snelling, *Miss Cathcart*; lake Superior to the lake of the Woods, *Macoun*. North.

A. cylindrica, Gray. Long-fruited Anemone.

Frequent throughout the state.

A. Virginiana, L. Virginian Anemone.

Common throughout the state.

A. dichotoma, L. (*A. Pennsylvanica, L.*) Pennsylvanian Anemone.

Common, often abundant, throughout the state.

A. nemorosa, L. Wind-flower. Wood Anemone.

Frequent, or common, throughout the state.

A. Hepatica, L. (*Hepatica triloba*, Chaix.) Liver-leaf. Round-lobed Hepatica.

Frequent southward, extending north at least to Duluth, *Miss Catheart*, upper Mississippi river, *Garrison*, and Fergus Falls, *Leonard*.

A. acutiloba, Lawson. (*H. acutiloba*, DC.) Sharp-lobed Hepatica.

Common southward, extending north to Duluth, *Miss Catheart*, and Mille Lacs county, *Upham*.

THALICTRUM, Tourn. MEADOW-RUE.

T. anemonoides, Michx. Rue-Anemone.

Often common southward, extending north to Stillwater, *Miss Field*, Anoka county, *Juni*, Stearns county, *Campbell*, and Fergus Falls, *Leonard*. Flowers nearly always purplish. (Abundant at Marine Mills, Washington county, often having more than one row of sepals and occasionally with all the stamens and pistils changed to sepals. *Miss Field*.)

T. dioicum, L. Early Meadow-Rue.

Common, or frequent, throughout the state.

T. purpurascens, L. Purplish Meadow-Rue.

Common, extending north at least to Morrison county, *Upham*, the St. Louis river, *Mrs. Herrick*, and in the Red river valley to Pembina, *Chickering*. (Specimens collected by Prof. Gedge at Glyndon, Clay county, have the shining upper surface of the very large leaflets waxy, as if varnished, but the lower surface minutely pubescent or glabrous, not waxy.)

T. Cornuti, L. Tall Meadow-Rue.

Common, or frequent, throughout the state.

RANUNCULUS, L. CROWFOOT. BUTTERCUP.

R. aquatilis, L., var. **stagnatilis**, DC. (*R. divaricatus*, Gray's *Manual*.) Stiff Water-Crowfoot.

Ponds near Mankato, *Leiberg*; Minneapolis, *Roberts, Herrick*; Stearns county, *Upham*; Alexandria, *Mrs. Terry*. Infrequent.

R. aquatilis, L., var. **trichophyllum**, Chaix. Common White Water-Crowfoot.

Frequent throughout the state.

R. multifidus, Pursh. Yellow Water-Crowfoot.

Common throughout the state.

R. ambigens, Watson. (*R. alismæfolius*, in *Manual*.) Water Plantain Spearwort.

Stearns county, *Campbell*. Infrequent. North.

R. Flammula, L. Small Spearwort.

Minneapolis, *Roberts*. Rare.

R. Flammula, L., var. **reptans**, Meyer. Creeping Spearwort.

Stillwater, *Leonard*; Minneapolis, *Roberts*; Anoka county and New Ulm, *Juni*; lake of the Woods, *Dawson*. Frequent.

R. Cymbalaria, Pursh. Sea-side Crowfoot.

Common, or frequent, throughout the state, excepting southeastward. Grand Portage, lake Superior, also at New Ulm (common), *Juni*; Little Rock, upper Minnesota river, *Parry*; Nicollet county, *Aiton*; Stearns county, and the Red river valley (common), *Upham*; Fergus Falls, *Leonard*; Worthington (common), *Foote*.

R. affinis, R. Br.* Rough-fruited Crowfoot.
Lake of the Woods, *Dawson*. Northwest.

R. affinis, R. Br., var. **cardiophyllum**, Gray.†
In the Red river valley at *Pembina, Chickering*. West.

R. rhomboideus, Goldie. Rhomboid-leaved Crowfoot. Dwarf Buttercup.
Frequent, or common, throughout the state.

R. abortivus, L. Small-flowered Crowfoot.
Frequent, or common, throughout the state.

R. abortivus, L., var. **micranthus**, Gray.
Minneapolis, *Winchell*; Pipestone county, *Mrs. Bennett*. Infrequent.

R. sceleratus, L. Cursed Crowfoot.
Frequent, or common, throughout the state.

R. recurvatus, Poir. Hooked Crowfoot.
Frequent throughout the state; reaching its northwestern limit at the lake of the Woods, *Macoun*.

R. Pennsylvanicus, L. Bristly Crowfoot.
Common throughout the state.

R. fascicularis, Muhl. Early Crowfoot.
Frequent, or common, throughout the south half of the state; infrequent northward.

R. repens, L. Creeping Crowfoot.
Abundant throughout the state.

R. repens, L., var. **hispidus**, Torr. & Gray.‡ (R. hispidus, Michx.)
Red river valley near Saint Vincent (in a swamp), *Dawson*; common from Manitoba westward, *Macoun*.

R. bulbosus, L. *Bulbous Crowfoot or Buttercups*.
Northfield, *Chaney*; Minneapolis, *Mrs. Terry*. Rare.

R. acris, L. *Tall Crowfoot or Buttercups*.
Infrequent, but noted at many places, as Lake City, Faribault, Northfield, Minneapolis, Northern Pacific Junction, Carlton county, and on the upper Mississippi river. "Becoming common in the eastern part of Manitoba," *Macoun*.

***RANUNCULUS AFFINIS**, R. Br. Radical leaves petioled, usually pedately multifid; caulinne ones subsessile, digitate, with broadly linear lobes; stem erect, few-flowered; carpels with recurved beaks, in oblong cylindrical heads; more or less pubescent throughout. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

†**R. AFFINIS**, R. Br., var. **CARDIOPHYLLUS**, Gray. Hirsutely pubescent, radical leaves round-cordate, undivided or many-cleft; caulinne ones palmately many-cleft; flower 1 inch in diameter. *Porter and Coulter's Flora of Colorado*.

‡**RANUNCULUS REPENS**, L., var. **HISPIDUS**, Torr. & Gray. Stem erect, 1½ to 2 feet high, branching and, with the petioles, very pilose with spreading hairs; leaves trifoliate; leaflets distinctly petiolulate, oval, acute, laciniate; pedicels with the pubescence appressed; flowers as large as in *R. acris*; calyx appressed; carpels smooth, pointed with a very short style. *Torrey and Gray's Flora of N. A.*, vol. 1, pp. 22 and 658.

ISOPYRUM, L. ISOPYRUM.**I. bibernatum**, Torr. & Gray. False Rue-Anemone.Frequent, or common, throughout the south half of the state; extending north at least to Fergus Falls, *Leonard***CALTHA, L.** MARSH MARIGOLD.**C. palustris**, L. Marsh Marigold. "Cowslip."

Abundant, or common, throughout most of the state; less frequent westward.

COPTIS, Salisb. GOLDFTHREAD.**C. trifolia**, Salisb. Three-leaved Goldthread.Common northward; extending south to Minneapolis, *Roberts*, and Lake City (rare), *Miss Manning*.**AQUILEGIA, Tourn.** COLUMBINE.**A. Canadensis**, L. Wild Columbine. "Honeysuckle."

Common, or frequent, throughout the state.

Found, according to *Miss Babbitt*, with white flowers during several years in the south edge of the village of Little Falls, Morrison county, not associated at that locality with the usual type; also some with flowers clear white, others cream-colored, and yet others of the ordinary kind, all growing together west of the Mississippi river, opposite to Little Falls, and likewise near Fort Ripley, in the same county.**A. brevistyla**, Hook.* Short-styled Columbine.In the Red river valley at Pembina, *Chickering*. West.**DELPHINIUM, Tourn.** LARKSPUR.**D. exaltatum**, Ait. Tall Larkspur.Frequent through the south half of the state; extending north to the upper Mississippi river, *Garrison*, and Fergus Falls, *Leonard*.**D. tricorne**, Michx. Dwarf Larkspur.St. Paul, *Miss Cathcart*; Pipestone county, *Mrs. Bennett*. Infrequent. South.**D. azureum**, Michx. Azure Larkspur.Common southward; extending north to the upper Mississippi river, *Garrison*, and Manitoba, *Macoun*.**D. Consolida**, L. Field Larkspur.Rarely adventive. Minneapolis, *A. W. Jones*.**HYDRASTIS, L.** ORANGE-ROOT.**H. Canadensis**, L. Orange-root. Yellow Puccoon.Stearns county, *Garrison*. Rare. Southeast.

**AQUILEGIA BREVISTYLA*, Hook. Stems low, 6 to 8 inches high, spreading; leaves bi-ternate; leaflets 3-lobed, crenate, 6 to 9 lines [twelfths of an inch] long, crenatures ovate, rotund; flowers small, blue, about 6 lines long, including the spur; sepals oblong-ovate; petals a little exceeding the stamens; spurs hooked at the tip; styles shorter, included. *Porter and Coulter's Flora of Colorado*.

ACTÆA, L. BANEBERRY.**A. spicata**, L., var. **rubra**, Ait. Red Baneberry.

Common through the wooded portions of the state.

A. alba, Bigelow. White Baneberry.

Common, with same extent as the last. Berries frequently borne on slender, green pedicels.

NIGELLA, L. FENNEL-FLOWER.**N. Damascena**, L.* *Fennel-flower.*Escaped from cultivation, Mankato, *Leiberg.***MENISPERMACEÆ.** MOONSEED FAMILY.**MENISPERMUM, L.** MOONSEED.**M. Canadense**, L. Canadian Moonseed.Frequent, often common, southward; extending north to Todd county and the northwest side of Mille Laes, *Upham*; also in the Red river valley near Saint Vincent, *Dawson, Havard*. (Its long, slender, bitter, yellow root is used by the Sioux as a medicine, being called *Pejuta zizi*; and from this came the name *Pejuta zizi*, or Yellow Medicine river. *T. M. Young.*)**BERBERIDACEÆ.** BARBERRY FAMILY.**BERBERIS, L.** BARBERRY.**B. vulgaris**, L. *Common Barberry.*Spontaneous in old fields, Mankato, *Leiberg.***CAULOPHYLLUM**, Michx. BLUE COHOSH.**C. thalictroides**, Michx. Blue Cohosh. Pappoose-root.

Common, or frequent, excepting northeastward.

PODOPHYLLUM, L. MAY-APPLE. MANDRAKE.**P. peltatum**, L. May-Apple, Mandrake.

Common southeastward, extending north to Goodhue and Rice counties.

NYMPHÆACEÆ. WATER-LILY FAMILY.**BRASENIA**, Schreber. WATER-SHIELD.**B. peltata**, Pursh. Water-Shield.Rainy lake and lake of the Woods, *Macoun*; Pleasant lake, near Saint Cloud,

**Nigella Damascena*, L. Flowers bluish, rather large, surrounded and overtopped by a finely divided leafy involucre, like the other leaves; succeeded by a smooth inflated 5-celled pod, in which the lining of the cells separates from the outer part. *Gray's Field, Forest, and Garden Botany.*

Campbell; Benton county, *Upham*; shallow lakes near St. Croix river, *Parry*; White Bear lake, Ramsey county, *Simmons*; Minneapolis, *Herrick*; Excelsior, *Mrs. Terry*; Fergus Falls, *Leonard*. Infrequent.

NELUMBIUM, Juss. **NELUMBO**. SACRED BEAN.

N. luteum, Willd. Yellow Nelumbo. Water Chinquapin. "Rattle-box."

Upper Mississippi river, *Houghton*; lake Minnetonka (north end of Halsted's bay), *Roberts*; Mendota, *Mrs. Terry*; Mississippi river at Red Wing, *Sandberg*, near Dresbach, Winona county, *Winchell*, and at La Crosse, *Swartz*. Rare.

NYMPHÆA, Tourn. **WATER-NYMPH**. WATER-LILY.

N. odorata, Ait. Sweet-scented Water-Lily.

Plentiful in lakes along the international boundary northwest of lake Superior, *Winchell*. Abundant throughout Quebec and Ontario and extending westward to the lake of the Woods, *Macoun*. This species probably occurs also in central and southern Minnesota, in company with the following. *Mr. Leiberg* reports the examination of a great number of *Nymphaea* rootstalks, none of them bearing tubers, at Lake Crystal, Blue Earth county.

N. odorata, Ait., var. **minor**, Sims. Smaller Sweet-scented Water-Lily. Turtle lake, Otter Tail county (flowers only one and a half inches broad), *H. B. Ayres*. Rare.

N. tuberosa, Paine. Tuber-bearing White Water-Lily.

The white lilies common or frequent in ponds or lakes throughout the state, excepting near its west side, which have been called *Nymphaea odorata*, are believed to belong instead, for the most part, to this species. "Flowers large and delicately beautiful, fragrant." (*Wheeler and Smith*) "This is really the water-lily of the Great lakes, as the true *N. odorata* seems to be confined to the northern waters, both lakes and rivers." (*Macoun*.)

NUPHAR, Smith. **YELLOW POND-LILY**. SPATTER-DOCK.

N. advena, Ait. Common Yellow Pond-Lily.

Common throughout the state.

N. luteum, Smith. Smaller Yellow Pond-Lily.

In small lakes east of the lake of the Woods, *Macoun*.

N. pumilum, Smith. (*N. luteum*, Smith, var. *pumilum*, Gray.) Small Yellow Pond-Lily.

Plentiful in Duluth harbor, *Roberts*; north shore of lake Superior, *Agassiz*; east shore of Rainy lake (rather rare), *Macoun*; Morrison county, *Miss Babbitt*.

SARRACENIACEÆ. PITCHER-PLANT FAMILY.

SARRACENIA, Tourn. SIDE-SADDLE FLOWER.

S. purpurea, L. Pitcher-Plant. Huntsman's Cup.

Common northward, extending south to Minneapolis, *Roberts*, *Winchell*; rare farther southeast.

PAPAVERACEÆ. POPPY FAMILY.

PAPAVER, L. POPPY.

P. somniferum, L. *Common Poppy. Opium Poppy.*
Adventive in old gardens, Mankato, *Leiberg*.

SANGUINARIA, Dill. BLOOD-ROOT.**S. Canadensis**, L. Blood-root.

Common, or abundant, throughout most of the state; less frequent westward, as at Fergus Falls, *Leonard*, and *Pembina*, *Havard*; rare north of lake Superior, *Clark*.

FUMARIACEÆ. FUMITORY FAMILY.

DICENTRA, Bork. DICENTRA.**D. Cucullaria**, DC. Dutchman's Breeches.

Common southward; extending north at least to Stillwater, Anoka and Stearns counties, and Fergus Falls.

D. Canadensis, DC. Squirrel Corn.

Saint Paul, *Miss Cathcart*; Minneapolis, *Twining*; Faribault, *Miss Beane*; Blue Earth county, *Leiberg*.

CORYDALIS, Vent. CORYDALIS.**C. glauca**, Pursh. Pale Corydalis.

Common north of lake Superior, *Roberts*; extending south to Stearns and Benton counties, *Upham*, and to the falls of the St. Croix river, *Parry*, *Miss Field*.

C. flavula, DC. Yellow Corydalis.

Thomson, Duluth and Taylor's Falls, *Miss Cathcart*; upper Mississippi river, *Garrison*; Red river valley, *Gedge*; Blue Earth county, *Upham*.

C. aurea, Willd. Golden Corydalis.

Common, or frequent, through the north half of the state; less frequent southward.

C. aurea, Willd., var. **micrantha**, Engelm.

Martin county, Minnesota, and Emmet county, Iowa (rare), *Cratty*.

FUMARIA, L. FUMITORY.**F. officinalis**, L. Common Fumitory.

Adventive, Winona, *Holzinger*.

CRUCIFERÆ. MUSTARD FAMILY.

NASTURTIUM, R. Br. WATER-CRESS.**N. officinale**, R. Br. True Water-Cress.

Stearns county, *Mrs. Blaisdell*; New Ulm, *Juni*; cold springs, Kasota, *Leiberg*; Tuttle's creek, Minneapolis, *Kassube*; lake Pepin, *Miss Manning*. Infrequent.

N. sinuatum, Nutt. Water-Cress.

Upper Mississippi river, *Garrison*; New Ulm, *Juni*; Pipestone county, *Leiberg*; lower Minnesota river, *Parry*; lake Pepin, *Miss Manning*.

N. sessiliflorum, Nutt. Water-Cress.

Lapham. Winona county, *Holzinger*. South.

N. palustre, DC. Marsh Cress.

Common, or frequent, throughout the state.

N. palustre, DC., var. **hispidum**, Fisch. & Mey.

Redwood Falls, *Pemberton*. Perhaps the prevailing form of the species in this state.

N. lacustre, Gray. Lake Cress.

Lapham. Southeast.

N. Armoracia, Fries. Horse-radish.

Adventive, Mankato, *Leiberg*; Northfield, *Chaney*.

DENTARIA, L. TOOTHWORT. PEPPER-ROOT.**D. diphylla**, Michx. Two-leaved Pepper-root.

Freeborn and Blue Earth counties, *Upham*; lake Superior, *Whitney*. East.

D. laciniata, Muhl. Toothwort.

Frequent southeastward; extending northwest to Saint Paul, *Miss Cathcart*, Martin county, *Cratty*, and Fergus Falls, *Leonard*.

CARDAMINE, L. BITTER CRESS.**C. rhomboidea**, DC. Spring Cress.

Frequent, or common, throughout the state.

C. pratensis, L. Cuckoo Flower.

Lake Superior to the sources of the Mississippi, *Houghton*. North.

C. hirsuta, L. Small Bitter Cress.

Common through the north half of the state; less frequent or rare southward. Glabrous specimens are sent by *Mr. Cratty* from Emmet county, Iowa. "A peculiar form grows on the height of land west of lake Superior, which seems to connect the species with the following variety," *Macoun*.

C. hirsuta, L., var. **sylvatica**, Gray.

Lake Minnetonka, *Roberts*, *Herrick*; Martin county (in woods), *Cratty*, determined by *Watson*.

ARABIS, L. ROCK CRESS.**A. lyrata**, L. Rock Cress.

Common, or frequent, through the north half of the state; extending thus south to Red Wing (common), *Sandberg*, and Winona, *Holzinger*; wanting southwestward.

A. dentata, Torr. & Gray. Rock Cress.

Woods, Blue Earth county, *Leiberg*; Martin county (plentiful), *Cratty*. South.

A. hirsuta, Scop. Hairy Rock Cress.

Frequent throughout the state.

A. Iævigata, Poir. Smooth Rock Cress.

Lake Pepin, *Miss Manning*; Goodhue county, *Sandberg*; Minneapolis, *Twining, Roberts*; Isanti and Sherburne counties, *Upham*; Stearns county, *Garrison*; lake Superior, *Whitney*.

A. Canadensis, L. Sickle-pod.

Frequent through the south half of the state; extending north to the upper Mississippi river, *Garrison*.

A. perfoliata, Lam. Tower Mustard.

Poplar river, lake Superior, *Juni*; upper Mississippi river, *Garrison*; Stearns county, *Campbell*; Blue Earth county, *Leiberg*; lake Pepin, *Miss Manning*.

A. Drummondii, Gray. Drummond's Tower Mustard.

Frequent, often common, throughout the state.

THELYPODIUM, Endl. ROCK CRESS.**T. pinnatifidum**, Watson. (*Arabis hesperidoides*, Gray). Rock Cress.

Northfield, *Chaney*. South.

BARBAREA, R. Br. WINTER CRESS.**B. vulgaris**, R. Br., var. **stricta**, Regel. Winter Cress. Yellow Rocket.

Put in bay, lake Superior, *Juni*; upper Mississippi river, *Garrison*; Minneapolis, *Roberts*.

ERYSIMUM, L. TREACLE MUSTARD.**E. cheiranthoides**, L. Worm-seed Mustard.

Frequent, or common, throughout the state.

E. asperum, DC.* Prairie Rocket, Western Wall-flower.

Abundant at Walhalla, Dakota, thirty miles west of the Red river, *Scott*; "a very prominent object on dry, gravelly soil throughout the prairie region" of Manitoba, *Macoun*, and ranging thence south to Mexico; doubtless extending sparingly into the west edge of Minnesota; also found by *Rev. J. Pemberton* at Redwood Falls, and by *Dr. Sandberg* on the limestone bluff of Belle creek opposite to the mill in Vasa, Goodhue county, occurring (like *Vesicaria Ludoviciana* in the same county) far east from its general limit.

E. parviflorum, Nutt.† Small-flowered Prairie Rocket.

Red river valley, *Dawson, Scott*; Minneapolis (beside railroad a mile southeast from the university: determined by *Mr. Watson* as this species; having light yellow "petals but half longer than the (3 to 4 lines long) sepals"; yet much branched near the base, numerous stems of nearly equal height (1 to 1½ feet) being thus sent up from a single root; leaves narrowly lanceolate, mostly entire; pods about 1½ inches long, beaked with a stout style, erect on short pedicels), *Upham*. West.

**ERYSIMUM ASPERUM*, DC. Biennial, canescent with short appressed hairs: stems solitary and simple, rarely branched above, 1 to 3 feet high, or less: leaves oblanceolate or narrowly spatulate; the caudine linear to linear-lanceolate, entire or sparingly repand with short acute teeth, 1 to 3 inches long: sepals narrow, 4 to 6 lines long, strongly gibbous: petals 8 to 12 lines long, light yellow to deep orange or purple: pods 1 to 4 inches long, a line wide, beaked with a stout style, ascending on stout spreading pedicels 3 lines long. *Brewer and Watson's Botany of California*.

†See description of *ERYSIMUM PARVIFLORUM*, Nutt., on next page.

SISYMBRIUM, L. HEDGE MUSTARD.

S. officinale, Scop. *Hedge Mustard.*
A common or frequent weed through the south half of the state.

S. Thaliana, Gay. *Mouse-ear Cress.*
Minneapolis, Winchell, Miss Butler. Rare.

S. canescens, Nutt. *Tansy Mustard.*
Frequent, or common, throughout the state.

S. canescens, Nutt., var. **brachycarpum**, Torr. & Gray.*
Red river valley, Dawson. North.

BRASSICA, Tourn. MUSTARD.

B. Sinapistrum, Boiss. *Charlock. Field Mustard.*
A common or frequent weed in grain-fields throughout the state; so troublesome in the Red river valley and southwestward that farmers allowing it to go to seed are subjected to a penalty by law.

B. alba, Gray. *White Mustard.*
Lake City, Miss Manning; Goodhue county, Sandberg; Blue Earth county, Leiberg; Stearns county, Garrison. Rare.

B. nigra, Koch. *Black Mustard.*
A common or frequent weed through the south half of the state.

B. campestris, L.† *Kale.*
Common in fields in Manitoba and around Winnipeg, Macoun; doubtless also in the Red river valley in this state.

DRABA, L. WHITLOW-GRASS.

D. arabisans, Michx. *Whitlow-Grass.*
North shore of lake Superior, Juni. Infrequent. North.

D. nemorosa, L., var. **hebecarpa**, Lindb. (*D. nemoralis*, Ehrh.)
About Rainy lake, Drummond (Macoun). North.

ERYSIMUM PARVIFLORUM, Nutt. (*E. lanceolatum*, Hook.) Canescently scabrous with an appressed 2-parted pubescence; stem low (about a foot high) and nearly simple; leaves remarkably narrow, all linear or somewhat lanceolate, almost wholly entire, densely clustered at the base of the stem; siliques long, erect; stigma emarginate; flowers small, sulphur yellow; claws of the petals longer than the calyx. Distinguished from *E. cheiranthoides* by its more pubescent leaves, [longer] siliques and larger flowers. *Torrey and Gray's Flora of N. A.*

SISYMBRIUM CANESCENS*, Nutt., var. **BRACHYCARPUM, Torr. & Gray. Lobes of the leaves somewhat acute, and, with the stem, furnished with minute stipitate glands; petals rather longer than the calyx; siliques scarcely attenuate at the base, somewhat longer than the pedicels. *Torrey and Gray's Flora of N. A.*

+*Brassica campestris*, L. Annual weed in cultivated fields and waste places; stem 1½ to 3 feet high, with a few scattered, reversed hairs below; leaves somewhat fleshy and glaucous, lower lyrate-dentate, subciliate, 3 to 7 inches long, one-third as wide, the upper ones smaller, entire with rounded clasping lobes at base, tapering to an obtuse point; raceme 1 to 2 feet long; sepals erect, spreading; corolla yellow, 4 to 5 lines in diameter; siliques 1½ inches long, with the style ½ inch; seeds small, dark brown. *Wood's Class-Book.*

D. nemorosa, L., var. **leiocarpa**, Lindb.* (D. lutea, Gilib. [DC.])
 Stearns county, *Campbell*; near Glyndon, *Gedge*; Pipestone county, *Mrs. Bennett*.
 Rare. North and west.

D. Caroliniana, Walt. Whitlow-Grass.

Frequent southward, extending north to Stearns county, *Mrs. Blaisdell*, and west to Pipestone county, *Mrs. Bennett*.

D. Caroliniana, Walt., var. **micrantha**, Gray.

Common in Iowa, *Arthur*; doubtless occurring also in Minnesota.

D. verna, L. Whitlow-Grass.

Saint Paul, *Miss Cathcart*. Rare. South.

ALYSSUM, Tourn. ALYSSUM.

A. calycinum, L. *Alyssum*.

Minneapolis, *Juni*, *Roberts*; Lake City, *Miss Manning*; Nicollet county, *Alton*. Infrequent.

VESICARIA, Tourn. BLADDER-POD.

V. Ludoviciana, DC.† Bladder-pod.

Red river valley, *Scott*, determined by *Watson*; also, Mississippi river bluffs, Red Wing, *Sandberg*. West.

CAMELINA, Crantz. FALSE FLAX.

C. sativa, Crantz. *False Flax*.

Minneapolis, *Juni*; along railways, Blue Earth county (introduced in flax-seed), *Leiberg*; Emmet county, Iowa (rare), *Cratty*; Pipestone county, *Mrs. Bennett*; Red river valley, *Dawson*. Infrequent.

SUBULARIA, L. Awlwort.

S. aquatica, L. Awlwort.

Found in about three feet of water, on sandy bottom in Vermilion bay, on Eagle lake, Canadian Pacific railway, Manitoba, near Rainy lake; abundant both in flower and fruit, Sept 13, 1882, *Fletcher, Macoun*. This rare species probably also occurs, and should be looked for, in northern Minnesota.

CAPSELLA, Vert. SHEPHERD'S PURSE.

C. Bursa-pastoris, Moench. *Shepherd's Purse*.

A very abundant weed throughout the state.

*DRABA NEMOROSA, L., var. LEIOPARPA, Lindb. Pubescent; stem branching, leafy, 6 to 15 inches high, very slender, sometimes branching from the base; pubescence simple or forked; leaves oval, caudine ones lanceolate, toothed; flowers very small, yellow; petals about twice as long as the calyx; style none; silicles oblong-elliptical, rather obtuse, glabrous, about 4 lines long, one-third to one-half the length of the slender spreading pedicels. *Porter and Coulter's Flora of Colorado*.

†VESICARIA LUDOVICIANA, DC. Canescent with a stellate pubescence; stem 6 to 8 inches high, simple, or somewhat branched above; radical leaves spatulate, entire, obtuse, caudine linear; flowers golden yellow; petals obovate; style slender, longer than the ovary and nearly as long as the obovate, globose, hairy silicle. *Porter and Coulter's Flora of Colorado*.

THLASPI, Tourn. PENNYCRESS.*T. arvense*, L. *Field Pennycress. Mithridate Mustard.*

Lapham. Pembina, Havard. "Abundant on the Red river near the older settlements" [in Manitoba]; "not yet common as far south as the forty-ninth parallel, but rapidly spreading. A most noxious weed." *Dawson.*

LEPIDIUM, L. PEPPERWORT. PEPPERGRASS.**L. Virginicum**, L. Wild Peppergrass.

Common, or frequent, throughout the state, excepting perhaps northward.

L. intermedium, Gray. Wild Peppergrass.

Abundant (petals usually wanting) throughout the state. Both species are native weeds.

CAKILE, Tourn. SEA-ROCKET.**C. Americana**, Nutt. American Sea-Rocket.

"Abundant on the sandy south shore" of lake Superior, *Whitney*; at Thunder bay, *Macoun*; doubtless also on the shore of lake Superior in Minnesota.

CAPPARIDACEÆ. CAPER FAMILY.

POLANISIA, Raf. POLANISIA.**P. graveolens**, Raf. Heavy-scented Polanisia.

Common through the south half of the state, extending north at least to Douglas county, *Mrs. Terry*; probably also in the Red river valley. (Two varieties are common at Minneapolis, one bearing yellowish, and the other pinkish flowers. *Herrick*.)

CLEOME, L. CLEOME. SPIDER FLOWER.**C. integrifolia**, Torr. & Gray.* Cleome. Spider Flower.

Mankato, *Upham, Leiberg*. An immigrant from the plains west of Minnesota. Southwest.

VIOLACEÆ. VIOLET FAMILY.

VIOLA, L. VIOLET.**V. rotundifolia**, Michx. Round-leaved Violet.

North of lake Superior (common), *Roberts*; upper Mississippi river, *Garrison*; extending south to Minneapolis, *Griswold*, and Saint Paul, *Miss Cathcart*.

***CLEOME**, L. Sepals distinct or somewhat united. Stamens 6 or rarely 4. Torus minute. Pod linear or oblong, subsessile or stipitate. Annual herbs, or shrubs, with digitate or simple leaves and racemed or solitary flowers. *Benth. & Hook.*

CLEOME INTEGRIFOLIA, Torr. & Gray. Annual, somewhat glaucous, 2 to 3 feet high, widely branching; leaves 3-foliate; leaflets lanceolate (the lowermost oblong), entire, submucronate; racemes sometimes nearly 1 foot long; flowers large, showy, reddish purple, rarely white; sepals united to the middle, persistent; segments triangular-acuminate; petals with very short claws; stamens equal; pods oblong-linear, compressed, much longer than the stipe. *Porter and Coulter's Flora of Colorado.*

V. lanceolata, L. Lance-leaved Violet.

Near Saint Paul, *Mrs. Terry*. Rare. South.

V. primulæfolia, L. Primrose-leaved Violet.

Near Saint Paul, *Mrs. Terry*; Pipestone county, *Mrs. Bennett*. Rare. South.

V. blanda, Willd. Sweet White Violet.

Frequent throughout the state.

V. renifolia, Gray.* Kidney-leaved Violet.

Abundant in cedar swamps and mossy woods from northern New England through Canada and Manitoba to British Columbia, *Macoun*; doubtless in northern Minnesota.

V. Selkirkii, Pursh. Selkirk's Violet. Great-spurred Violet.

Upper Mississippi river, *Garrison*. Rare. North.

V. cucullata, Ait. Common Blue Violet.

Common, often abundant, throughout the state.

V. cucullata, Ait., var. *palmata*, Gray. Hand-leaf Violet.

Lake Pepin, *Miss Manning*; Minneapolis, *Herrick, Griswold*; Worthington (common), *Foote*.

V. cucullata, Ait., var. *cordata*, Gray.

Near Minneapolis, *Mrs. Terry*; Nicollet county, *Aiton*.

V. sagittata, Ait. Arrow-leaved Violet.

Frequent southeastward; extending north to Minneapolis, *Roberts*, Marine Mills, Washington county, *Miss Field*, and Anoka county, *Juni*; and northwest to Fergus Falls, *Leonard*.

V. delphinifolia, Nutt. Larkspur Violet.

Frequent, often common, through the south half of the state; extending north to Morrison county, *Upham*, and along the Red river valley.

V. pedata, L. Bird-foot Violet.

Abundant, or common, through the south half of the state and in the Red river valley.

V. canina, L., var. *sylvestris*, Regel. Dog Violet.

Frequent, but not common, throughout most of the state; rare southward.

V. striata, Ait. Pale Violet.

Hennepin county, *Herrick*; Alexandria, *Mrs. Terry*. Infrequent.

V. Canadensis, L. Canada Violet.

Frequent northward, and found more rarely throughout the south half of the state; extending southwest to Martin county (very scarce), *Cratty*, and Pipestone county, *Mrs. Bennett*. Flowers light pink.

V. pubescens, Ait. Downy Yellow Violet.

Common, or frequent, throughout the state.

V. pubescens, Ait., var. *eriocarpa*, Nutt.

Frequent in the vicinity of Hesper, Iowa, at the southern boundary of Minnesota, adjacent to Houston and Fillmore counties, *Mrs. Carter*.

V. tricolor, L. *Pansy. Heart's Ease*.

Rarely adventive, Stearns county, *Garrison*.

***VIOLA RENIFOLIA**, Gray. Rootstock and flowers as in *V. blanda*, or somewhat larger; leaves reniform (when fully grown usually two inches wide), on both sides, as also the petiole, villous-pubescent; scape pubescent. *Gray in Proc. Am. Acad. of Arts and Sciences*, 1870.

CISTACEÆ. ROCK-ROSE FAMILY.

HELIANTHEMUM, Tourn. ROCK-ROSE.**H. Canadense**, Michx. Frost-weed.

Common, or frequent, throughout the state, excepting near its west side and far northward; extending north to the upper Mississippi river, *Garrison*, and *Fort Francis*, *Rainy river*, *Macoun*.

HUDSONIA, L. HUDSONIA.**H. tomentosa**, Nutt. Downy Hudsonia.

Fifteen-mile point, *Rainy lake*, and *Hungry Hall*, entrance to the lake of the Woods, *Macoun*; *Minnesota point*, near *Duluth*, and on sand dunes in *Anoka county*, *Roberts*; on sand hills in section 21, *Orrock*, *Sherburne county* (plentiful, with short-peduncled flowers and narrow leaves), *Upham*; near *Rockford*, *Wright county*, *Hatch*; barren ridges of the *St. Croix*, *Parry*; *Castle Rock*, *Dakota county*, *Geyer*; *White Rock*, *Goodhue county*, *Sandberg*; *lake Pepin*, *Miss Manning*. Local.

LECHEA, L. PINWEED.**L. minor**, Walt. Small Pinweed.

Sturgeon lake (near the international boundary east of *Rainy lake*), *Macoun*; upper Mississippi, *Houghton*; *St. Croix river*, *Parry*; *Steele county*, *Upham*.

DROSERACEÆ. SUNDEW FAMILY.

DROSERA, L. SUNDEW.**D. rotundifolia**, L. Round-leaved Sundew.

Common, or frequent, northward; extending south to *Minneapolis*, *Roberts*.

D. intermedia, Drev. and Hayne, var. **Americana**, DC. (*D. longifolia*, in *Manual*.) Long-leaved Sundew.

Similar in range with the last, but less frequent. North shore of *lake Superior* at *Little Marais*, *Juni*; between the lake of the Woods and *Red river* (common), *Dawson*; extending south to sections 17 and 19, *Ham Lake*, *Anoka county* (with the leaves scattered along the stem or caudex), *Roberts*.

D. linearis, Goldie. Slender Sundew.

Lake Superior to *Roseau river*, *Burgess*, *Macoun*; extending south to *Hennepin county* (frequent), *Roberts*.

HYPERICACEÆ. ST. JOHN'S-WORT FAMILY.

HYPERICUM, L. ST. JOHN'S-WORT.**H. pyramidatum**, Ait. Great St. John's-wort.

Rare or local northward, but frequent southward; extending north to *Todd county*, *Upham*, the upper *Mississippi* and *Minnesota* rivers, *Parry*, and northwest to the plains of the *Saskatchewan*, *Bourgeau*, *Macoun*.

[*H. Kalmianum*, L., probably occurs on the north shore of *lake Superior* in this state.]

H. prolificum, L. Shrubby St. John's-wort.
Vasa, Goodhue county, *Sandberg*. Southeast.

H. ellipticum, Hook. St. John's-wort.
Lapham. Upper Mississippi river, *Garrison*. [Devil's lake, Dakota, *Geyer*.] Infrequent. North.

[*H. perforatum*, L., may be expected as a weed southeastward.]

H. corymbosum, Muhl. St. John's-wort.

Lapham. Lake Pepin, *Miss Manning*; Hesper, Iowa, adjacent to the south line of Houston and Fillmore counties, *Mrs. Carter*. Rare.

H. mutilum, L. Slender St. John's-wort.

Throughout the state; common northward, less frequent southward.

H. mutilum, L. var. **gymnanthum**, Gray.
Minneapolis, *Roberts*.

H. Canadense, L. Canadian St. John's-wort.

St. Croix river, *Parry*; Stearns county, *Campbell*; Sibley county, *Leonard*; Martin county (rare), *Cratty*.

H. Canadense, L. var. **major**, Gray.

Lake Superior, *Robbins*, and in Iowa, *Arthur*; doubtless also in Minnesota.

ELODES, Adans. MARSH ST. JOHN'S-WORT.

E. Virginica, Nutt. Marsh St. John's-wort.
Throughout the state; common northward, frequent southward.

CARYOPHYLLACEÆ. PINK FAMILY.

SAPONARIA, L. SOAPWORT.

S. officinalis, L. Common Soapwort. Bouncing Bet.
Blue Earth county, *Leiberg*; Lake City, *Miss Manning*; Wabasha, *Gibson*.

S. Vaccaria, L. (*Vaccaria vulgaris*, Host.) Cow-Herb.

Seldom plentiful, but reported at many places throughout the state. *Mr. Leiberg* writes: "This is becoming a common weed in the grain-fields of Blue Earth county, where the farmers call it 'cockle', and complain very much of it. It will doubtless become as plentiful as the true cockle (*Lychnis Githago*). Most of the seeds are just small enough to pass through a wheat-screen, and they can thus be separated; but, as the largest seeds will be left in whenever the grain is cleaned, the result will be that in time, through this process of selection, the seeds can no more be cleaned out of the wheat than true cockle."

SILENE, L. CATCHFLY. CAMPION.

S. stellata, Ait. Starry Campion.

Common through the south part of the state; extending north at least to Minneapolis, *Herrick*, and Redwood Falls, *Miss Butler*.

S. nivea, DC. Campion.

Upper Mississippi river, *Garrison*; Goodhue county, *Sandberg*; Hesper, Iowa, adjoining Houston county, *Mrs. Carter*. Rare. Southeast.

S. Virginica, L. Fire Pink. Catchfly.

Nicollet county, *Leiberg*. Rare. Southeast.

S. antirrhina, L. Sleepy Catchfly.

Frequent, or common, throughout the state.

S. noctiflora, L. Night-flowering Catchfly.

Frequent throughout the state.

LYCHNIS, Tourn. LYCHNIS. COCKLE.**L. vespertina**, Sibth. Evening Lychnis.Minneapolis, *Juni*, *Kassabe*, *Moulton*. Rare.**L. Githago**, Lam. Corn Cockle.

A common weed in wheat-fields throughout the state.

ARENARIA, L. SANDWORT.**A. serpyllifolia**, L. Thyme-leaved Sandwort.Northfield, *Chaney*. Rare.**A. Michauxii**, Hook. (A. stricta, Michx.) Strict Sandwort.Rooting on detached rocks, head of lake St. Croix, *Parry*; lake of the Woods, *Macoun*. Rare.**A. lateriflora**, L. Showy Sandwort.

Frequent throughout the state.

STELLARIA, L. CHICKWEED. STARWORT.**S. media**, Smith. Common Chickweed.

Frequent throughout the state.

S. longifolia, Muhl. Long-leaved Stitchwort.

Common throughout the state.

S. longipes, Goldie. Long-stalked Stitchwort.Minneapolis, *Griswold*, *Kassabe*; Anoka county and Duluth, *Juni*. [Devil's lake, Dakota, *Geyer*.] North.**S. crassifolia**, Ehrh. Starwort.Cannon Falls, Goodhue county, *Blake*, *Sandberg*; Minneapolis (plentiful in ditches in swamps), *Roberts*, *Upham*; and northward.**S. borealis**, Bigelow. Northern Stitchwort. Starwort.Common, or frequent, in the north half of the state. [The var. *alpestris*, Gray, has been found on the north side of lake Superior, at Pie island, by *Macoun*.]**CERASTIUM**, L. MOUSE-EAR CHICKWEED.**C. viscosum**, L. (C. *vulgatum*, L., in *Manual*.) Mouse-ear Chickweed.Winona county, *Holzinger*; lake Pepin, *Miss Manning*. [Lake Superior, *Whitney*.] Infrequent.**C. vulgatum**, L. (C. *viscosum*, L., in *Manual*.) Large Mouse-ear Chickweed.

Common, or frequent, throughout the state, excepting perhaps westward.

C. nutans, Raf. Nodding Mouse-ear Chickweed.

Frequent, or common, throughout the state, excepting southwestward.

C. oblongifolium, Torr. Mouse-ear Chickweed.Winona county, *Holzinger*; Fergus Falls, *Leonard*. Rare. Southeast.

C. arvense, L. Field Chickweed.

Frequent, or common, through the north half of the state and southwestward; rare southeastward.

SAGINA, L. PEARLWORT.**S. nodosa**, E. Meyer. Pearlwort.

North shore of lake Superior, doubtless in Minnesota; Isle Royale, *Whitney*; island of St. Ignace, *Macoun*.

PARONYCHIEÆ. WHITLOW-WORT FAMILY.

ANYCHIA, Michx. WHITLOW-WORT. NAILWORT.**A. dichotoma**, Michx. Forked Chickweed. Whitlow-wort.
Lapham. Infrequent.

FICOIDEÆ. ICE PLANT FAMILY.

MOLLUGO, L. INDIAN-CHICKWEED.**M. verticillata**, L. Carpet-weed.

Common, or frequent, southward. Exposed rocks and sandy fields, St. Croix river, *Parry*; abundant in Hennepin county on sandy river-banks, appearing indigenous, *Roberts*.

PORTULACACEÆ. PURSLANE FAMILY.

PORTULACA, Tourn. PURSLANE.

P. oleracea, L. Common Purslane. "Pusley."
A very common garden weed.

P. retusa, Engelm.* Western Purslane.

Upper Minnesota river, *Parry*; Yellow Medicine county, *Upsham*; upper Mississippi river, *Garrison*. (Surely indigenous; yet possibly to be referred to the foregoing species.) West.

TALINUM, Adans. TALINUM.**T. teretifolium**, Pursh. Talinum.

Rare, occurring only on ledges of rock (trap, syenite, granite and quartzite); absent far northward. Taylor's Falls (of St. Croix river), *Houghton*, *Miss Field*; Duluth, *Miss Cathcart*; Watab, Benton county, and at numerous places in Stearns and Morrison counties, *Upsham*; upper Minnesota river, *Parry*; Redwood Falls, *Miss Butler*; "plentiful on most of the ledges in Rock and Pipestone counties (a handsome little plant, extremely easy of cultivation)," *Leiberg*.

* **PORTULACA RETUSA**, Engelm. Like *P. oleracea*, L., but greener, and the stem more ascending, sometimes covering a space several feet in diameter; leaves usually smaller than the common species; sepals obtuse, broadly carinate-winged; petals yellow; stigmas 3 or 4; capsule $2\frac{1}{2}$ to 3 lines long, broader in proportion; seeds more strongly tuberculate than in *P. oleracea*. *Brewer and Watson's Botany of California*.

CLAYTONIA, L. SPRING-BEAUTY.**C. Virginica**, L. Narrow-leaved Spring-Beauty.

Throughout the state, but rare in most portions; frequent, or common, southeastward.

C. Caroliniana, Michx. Wide-leaved Spring-Beauty.Lake City, *Mrs. Ray.* Southeast.**MALVACEÆ.** MALLOW FAMILY.**MALVA**, L. MALLOW.**M. rotundifolia**, L. Common Mallow.Common southward, and as far north as Morrison and Todd counties, *Upham*; but not yet common westward.**M. sylvestris**, L. High Mallow.Fort Francis, Rainy river, *Macoun*; Minneapolis, *Herrick*; Goodhue county, *Sandberg*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*.**M. crispa**, L. Curled Mallow.Adventive, Lake City, *Miss Manning*.**CALLIRRHOE**, Nutt. CALLIRRHOE.**C. triangulata**, Gray. Callirrhoe.*Lapham.* South.**NAPÆA**, Clayt. GLADE MALLOW.**N. dioica**, L. Glade Mallow.*Lapham.* Vasa, Goodhue county, *Sandberg*. Rare. Southeast.**MALVASTRUM**, Gray. FALSE MALLOW.**M. coccineum**, Gray. Prairie Mallow.Minnesota, *Gray's Manual*. West. Its eastern limit scarcely reaches into this state.**ABUTILON**, Tourn. INDIAN MALLOW.**A. Aricinnae**, Gærtn. Velvet-Leaf.

Anoka, Hennepin, Ramsey, Wabasha and Blue Earth counties. Infrequent.

HIBISCUS, L. ROSE-MALLOW.**H. militaris**, Cav. Halberd-leaved Rose-Mallow.Banks of the Mississippi river between Saint Paul and Mendota (abundant). *Mrs. Terry.* South.**H. Trionum**, L. Bladder Ketmia. Flower of an Hour.Adventive, Minneapolis, *Kasssueh*. *Upham*; Goodhue county, *Sandberg*; Martin county, *Gedge*. [This has become abundant in many parts of Nebraska, *Aughey*.]

TILIACEÆ. LINDEN FAMILY.

TILIA, L. LINDEN. BASSWOOD.

T. Americana, L. Basswood. Bass. Linden. Lime Tree. Whitewood.

Very abundant in the Big Woods, and generally common throughout the state; not found near the Minnesota shore of lake Superior, but frequent north of this lake, on maple ridges 400 feet and more above it, attaining a height of 70 feet and diameter of 20 inches, *Clark*; also, not found in Rock county, but very plentiful at Bear lakes in Murray county, *Upham*; extending north to Basswood lake on the international boundary, *Winchell*.

[The northern limit of this species is found just south of Thunder bay, from which it nearly follows the international boundary to the lake of the Woods. It extends farther north in Manitoba, nearly to lake Winnipeg, and northwest to Fort Ellice. *Dr. Robert Bell.*]

(The leaves of this and many other species of trees, in their first few years of growth from the seed, are often remarkably large. The following measurements were made in Todd county, September 16th: leaf of basswood, blade, 14½ inches long and 12 inches wide, borne on a petiole 3 inches long; of large-toothed aspen, blade, 10 by 7½, and petiole, 4 inches; of balsam poplar, blade, 11 by 7, and petiole, 2 inches; and of elm, blade, 9 by 6 inches, with petiole only a half inch long.)

"Basswood lumber is much used in cabinet work for boxes, shelves, etc., whenever a wood is desired which is soft and easily worked, and, at the same time, tough and not liable to split." It decays more quickly than most kinds of lumber, when exposed to the weather, unless it is thoroughly painted; but is sufficiently durable, if kept dry.

LINACEÆ. FLAX FAMILY.

LINUM, L. FLAX.

L. perenne, L.* Wild Flax. Prairie Flax.

At Pembina, and thence westward, *Chickering*; Stearns county, *Mrs. Blaisdell*, West.

L. sulcatum, Riddell. Wild Flax.

Common from Minneapolis, *Roberts*, southward, and westward to the Red river valley, *Upham*; Pipestone quarry, *Mrs. Bennett*.

L. rigidum, Pursh.† Wild Flax.

From Winona county, *Winchell*, Minneapolis, *Twining*, and Anoka county, *Juni*, westward to Pipestone county, *Leiberg*, and the Red river valley (common in Clay county), *Upham*. South and west.

* *LINUM PERENNE*, L. Perennial, glabrous; leaves scattered, linear, acute; flowers nearly opposite the leaves and terminal; peduncles becoming elongated and nodding in fruit; sepals oval with membranous margins, shorter than the globose capsule; petals free, blue, retuse, 3 to 4 times exceeding the calyx; styles 5; capsule 5-celled, with bearded dissepiments. Stems ½ to 3 feet high; flowers large. May to September. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

† *LINUM RIGIDUM*, Pursh. Dwarf; glaucous; styles united almost to the top. *Gray's Manual*.—Stems 5 to 15 inches high, angled, much branched; branches strict, ascending; leaves alternate, linear, pungently acute, rigid, with scabrous margins; flowers panicled or corymbose; pedicels thickened at the end, and forming an exterior cup-shaped calyx; sepals ovate-lanceolate, cuspidate, strongly 3-nerved, glandular spinulose-scabrous on the margins, longer than the globose capsule; petals sulphur-yellow. *Porter and Coulter's Flora of Colorado*.

L. usitatissimum, L. Common Flax.

Sometimes adventive in fields: Minneapolis; Blue Earth county; Redwood Falls; Luverne.

GERANIACEÆ. GERANIUM FAMILY.

GERANIUM, L. CRANESBILL.

G. maculatum, L. Wild Cranesbill.

Common, often abundant, through the south half of the state; extending northwest to Clay county, *Gedge*, the upper Mississippi river, *Garrison*, and the mouth of Rainy river, *Macoun*.

G. Carolinianum, L. Carolina Cranesbill.

Common, or frequent, throughout the state; most plentiful northward.

G. Robertianum, L. Herb Robert.

Falls of the St. Croix, *Parry*; Fergus Falls, *Leonard*; extending west to the lake of the Woods, *Macoun*. North.

ERODIUM, L'Her. STORKSBILL. HERON'S-BILL.

E. cicutarium, L'Her. Storksbill. Heron's-bill.

Minneapolis, *Juni*, *Kassabe*, *Roberts*. Rare. An abundant weed in the Pacific states and in some districts eastward.

IMPATIENS, L. BALSAM. JEWEL-WEED. TOUCH-ME-NOT.

I. pallida, Nutt. Pale Touch-me-not.

Throughout the state; in many portions infrequent or rare; common at New Ulm, *Juni*, and in Blue Earth county, *Leiberg*; abundant in Martin county, *Cratty*, and on the south shore of Red lake, *Miss Babbitt*.

I. fulva, Nutt. Spotted Touch-me-not.

Common throughout the state. ("At Beaver Bay a spotless variety, with less reflected spur, was common and grew intermingled with the ordinary form, without showing any signs of intergradation," *Roberts*.)

OXALIS, L. WOOD-SORREL. OXALIS

O. Acetosella, L. Common Wood-Sorrel.

Common north of lake Superior, *Roberts*; lake of the Woods, *Macoun*; extending northwest to the Saskatchewan, *Richardson*. North.

O. violacea, L. - Violet Wood-Sorrel.

Common through the south half of the state to Pipestone county, *Mrs. Bennett*; extending north to the upper Mississippi river, *Garrison*, and in the Red river valley at least to Clay county, *Gedge*. (*Herrick* reports, besides the type, a variety that bears white flowers, occurring quite frequently in the vicinity of Castle Rock, Dakota county; and *Miss Babbitt* finds the same at Little Falls. Succulent flower-bearing scapes, not accompanied by leaves, are occasionally seen in September [*Upaham*]. "The usual occurrence of a white, carrot-shaped root beneath the ordinary scaly bulb" of this species is noticed by *Roberts*, in the *American Naturalist* for August, 1879. See also *Am. Nat.*, vol. xvi, pp. 13-19.)

O. corniculata, L., var. **stricta**, Sav. (*O. stricta*, L.) Yellow Wood-Sorrel. Ladies' Sorrel.

Common throughout the state.

RUTACEÆ. RUE FAMILY.

XANTHOXYLUM, Colden. PRICKLY ASH.

X. Americanum, Mill. Northern Prickly Ash. Toothache-tree.
Very abundant southward; extending north to Pine, Aitkin, Cass and Polk counties.

PTELEA, L. SHRUBBY TREFOIL. HOP-TREE.

P. trifoliata, L. Shrubby Trefoil. Hop-tree. Wafer Ash.
Lopham. Southeast.

ANACARDIACEÆ. CASHEW FAMILY.

RHUS, L. SUMACH.**R. typhina**, L. Staghorn Sumach.

Limited to the east side of the state and the region from the upper Mississippi river northeastward, as follows: in Houston and Fillmore counties, rare; in Winona county the most frequent species on the bluffs of the Mississippi ("at Winona samples were seen eight inches in diameter", *Winchell*), but rare farther west; common in Ramsey and Hennepin counties, extending west into the Big Woods, and to Martin county, *Crafty*; rare in Benton county; common in Pine county and westward to Mille Lacs, Little Falls and lake Alexander, Morrison county; at Fish-hook lake in southwestern Cass county, *Garrison*; and occasional northeastward, being reported by *Clark* at Sandy lake, Fond du Lac, Grand Portage and Pigeon river.

R. glabra, L. Smooth Sumach.

Common throughout the state, excepting north of lake Superior, where it is rare.

R. copallina, L. Dwarf Sumach.

Houston county, near La Crescent, also in Winona county, *Winchell*; lake Pepin, *Miss Manning*; Goodhue county, *Sandberg*; Saint Paul, *Miss Catheart*; Blue Earth county, *Leiberg*; Worthington, *Foot*; Pipestone county, *Mrs. Bennett*. Rare. South.

R. venenata, DC. Poison Sumach. Poison Dogwood.

Observed, like the preceding, in Houston county, near La Crescent, and in Winona county, by *Prof. Winchell*; Hennepin county, *Simmons*; Anoka county, *Juni*; upper Mississippi river, *Garrison*. Rare.

R. Toxicodendron, L. Poison Ivy. Poison Oak.

Common, often abundant, throughout the state. (Erect or decumbent, 1 to 3 feet high; not climbing.)

R. Toxicodendron, L., var. **radicans**, Torr.* Climbing Poison Ivy.

This variety (or species) occurs sparingly in the southeast part of the state: *Mrs. Carter, Miss Manning*.

R. aromatica, Ait. Fragrant Sumach.

Maligne river (near the international boundary east of Rainy lake), *Macoun*. Rare.

***RHUS TOXICODENDRON**, L., var. **RADICANS**, Torr. (*R. radicans*, L.) Stems climbing by means of innumerable radicating tendrils; leaflets 3, ovate, dark green, smooth and shining, entire, the lowest rarely angular; flowers greenish, racemed in axillary panicles; berries dull white. A vigorous woody climber, ascending trees and other objects 10 to 40 or 50 feet. The stem becomes 1 to 2 inches [or more] in thickness, covered with a greenish, scaly bark, and throws out all along its length myriads of turead-like rootlets, which bind it firmly to its support. *Wood's Class-Book*.

VITACEÆ. VINE FAMILY.

VITIS, Tourn. GRAPE.

V. *Labrusca*, L. Northern Fox-Grape.

Occurs frequently, according to *Clark*, in the east part of the state, as far northward as southern Pine county, and rarely on the St. Louis river; lake Pepin, *Miss Manning*.

V. *aestivalis*, Michx. Summer Grape.

Lapham. St. Croix Falls, *Miss Field*; Anoka county, *Juni*; Big Stone lake, *Winchell*; Fergus Falls, *Leonard*. Infrequent. South.

V. *cordifolia*, Michx.* Winter or Frost Grape.

Frequent in the south half of the state; also in the Red river valley, near Emerson, Manitoba, *Dawson*.

V. *riparia*, Michx.† (V. *cordifolia*, Michx., var. *riparia*, Gray.) Winter or Frost Grape.

Common throughout the state, excepting north of lake Superior.

AMPELOPSIS, Michx. VIRGINIAN CREEPER.

A. *quinquefolia*, Michx. Virginian Creeper. Five-leaf Ivy. American Ivy. "Woodbine."

Common through the south half of the state and in the Red river valley; probably less frequent northeastward. "A very desirable climber, often cultivated"

RHAMNACEÆ. BUCKTHORN FAMILY.

RHAMNUS, Tourn. BUCKTHORN.

R. *alnifolia*, L'Her. Alder-leaved Buckthorn.

St. Croix river, *Parry*; Minneapolis, *Winchell*, *Kassabe*; beach of lake Superior, *Juni*; lake of the Woods, *Dawson*. Rare southward; common far northward.

**VITIS CORDIFOLIA*, Michx. Tall (or more rarely low), climbing high, trunks not rarely 6 to 9 inches in diameter; leaves middle-sized or small (2½ to 3 or 4 inches in diameter), heart-shaped, mostly entire or very slightly tri-lobed on the edges, with broad, shallow teeth, usually smooth and shining, more on the upper than on the lower side, the young ones sometimes, and very rarely the old ones, with short hair on the ribs below; berries small, in large, mostly loose bunches, black, without a bloom, maturing late in the fall, usually only with a single short and thick seed, marked by a prominent raphe.—This grows more especially in fertile soil, and is common in river and creek bottoms. *Engelmann*, in *Sixth An. Rep., Insects of Missouri*; also in *Bulletin of the Torrey Botanical Club*.

†*VITIS RIPARIA*, Michx. Mostly a smaller plant than the last, but with larger (3 to 5 inches in diameter) and more or less incisely 3-lobed, glabrous, shining (or rarely when young, slightly hairy) leaves, the lobes long and pointed, the teeth also more pointed than in *V. cordifolia*; berries usually larger than in the last, mostly with a bloom, in smaller and often more compact bunches, commonly 1-to 2-seeded; seeds with a less prominent raphe.—This species prefers thickets or rocky soil on river-banks; the northern form has fewer and larger berries in a bunch, and is easily distinguished from *V. cordifolia*. The fruit ripens earlier than the former and is pleasanter. *Engelmann*, in *Insects of Mo.*, and in *Bull. Torr. Cl.*

CEANOTHUS, L. NEW JERSEY TEA. RED-ROOT.**C. Americanus, L.** New Jersey Tea. Red-root.

Common throughout the state, excepting far northward; especially abundant on sandy tracts in the region of the upper Mississippi river. Though only a small shrub, one to three feet high, its root is a mass of gnarled wood, sometimes six or eight inches in diameter, "a troublesome obstacle in first breaking the soil."

C. ovatus, Desf. (C. ovalis, Bigelow.) Red-root.

Sandy ridges of the St. Croix, "seeming to take the place of the preceding species and an indication of a more barren soil," *Parry*; New Ulm, *Juni*. [Kaministiquia river (very abundant), *Macoun*.] Local.

CELASTRACEÆ. STAFF-TREE FAMILY.**CELASTRUS, L.** STAFF-TREE. SHRUBBY BITTER-SWEET.**C. scandens, L.** Climbing Bitter-sweet. Wax-work.

Common through the south half of the state, extending north to the sources of the Mississippi, and to Polk county; less frequent north to Emerson, Manitoba, *Scott*.

EUONYMUS, Tourn. SPINDLE-TREE.**E. atropurpureus, Jacq.** Burning-Bush. Waahoo.

Frequent southward; extending north to Anoka county, *Juni*, Lake Elizabeth, Kandiyohi county, *Mrs. Terry*, and Clay county in the Red river valley, *Gedge*.

E. Americanus, L., var. *obovatus*, Torr. & Gray. Trailing Strawberry Bush.

Minneapolis, *Winchell*; lake Pepin, *Miss Manning*. Rare.

SAPINDACEÆ. SOAPBERRY FAMILY.**STAPHYLEA, L.** BLADDER-NUT.**S. trifolia, L.** American Bladder-Nut.

Frequent southward; extending north to Minnehaha falls, *Roberts*, and New Ulm, *Juni*.

ACER, Tourn. MAPLE.**A. Pennsylvanicum, L.** Striped Maple. Moose-wood.

Common northeastward, extending south to the upper Mississippi river and to southeastern Pine county; rare and local farther south to lake Pepin, *Miss Manning*.

A. spicatum, Lam. Mountain Maple.

Abundant north of lake Superior and along the international boundary; extending south to Mille Lacs, *Upham*; rare and local farther southward on the Mississippi bluffs at lake Pepin, *Miss Manning*, and in section 22, Richmond, Winona county, *Winchell*.

A. saccharinum, Wang. Sugar Maple. Rock Maple. Hard Maple.

Common, often abundant, throughout the state, excepting near its west side. Not found close to the shore of lake Superior, but common two or three miles from it, 400 feet or more above the lake, attaining a height of 75 feet, *Clark*. The northern limit of this tree, according to *Bell*, extends from the lower part of the valley of the Kaministiquia river westward, a little to the north of the boundary line, to the lake of the Woods, where it turns south. The Chippewa Indians, who are yet the principal inhab-

itants of the wooded region north of the Northern Pacific railroad, make considerable maple sugar, their ordinary product in the region of lake Superior, according to *Clark*, being from 100 to 500 pounds for each lodge.

A. saccharinum, Wang., var. **nigrum**, Torr. & Gray. Black Sugar Maple.

Houston county, *Winchell*; upper Mississippi river, *Garrison*. *Mr. J. C. Arthur* reports this variety common at Waterville, Le Sueur county, and believes it to be the prevailing form of the species at least through the south part of the state.

A. dasycarpum, Ehrh. White or Silver Maple. River Maple. Soft Maple.

Common southward, extending north to the upper Mississippi and the White Earth reservation, *Garrison*. More frequently cultivated for shade than the next, each of these species being often called soft maple.

A. rubrum, L. Red Maple. Swamp Maple. Soft Maple.

Common through the east part of the state; extending west to Mud Portage on the Dawson route (north of lake Superior), *Macoun*, the White Earth reservation, *Garrison*, and Redwood Falls, *Pemberton*; abundant in Winona county, *Winchell*. This and the two preceding species, especially the sugar maple, are valuable for furniture and cabinet work, and are fine shade and ornamental trees, for which purpose they are extensively raised from the seed or transplanted from the woods.

NEGUNDO, Mœnch. ASH-LEAVED MAPLE. Box-Elder.

N. aceroides, Mœnch. Box-Elder.

Common through the south half of the state, extending thus north to Kanabec, Mille Lacs and Wadena counties; less frequent farther north to the St. Louis river near Fond du Lac, *Winchell*, Kaministiquia river, *Macoun*, and the upper Mississippi river, *Garrison*; also abundant throughout the Red river valley and northwestward, reaching east to the lake of the Woods, *Dawson*. "Destined to be the shade tree of all the prairie cities" of Manitoba (*Macoun*). Along the Minnesota river, it sometimes exceeds three feet in diameter (*Winchell*). Sugar and syrup are made from it at Big Stone lake.

POLYGALACEÆ. MILKWORT FAMILY.

POLYGALA, Tourn. MILKWORT. POLYGALA.

P. sanguinea, L. Purple Milkwort.

Frequent, or common, southward; extending north to the upper Mississippi river, *Garrison*, and Polk county, *Upham*.

P. cruciata, L. Milkwort.

Margins of swampy lakes, St. Croix river, *Parry*; Minneapolis (frequent), *Roberts*; Stearns county, *Mrs. Blaiddell*.

P. verticillata, L. Milkwort.

Frequent, or common, in the south and west portions of the state; extending north to Minneapolis, *Simmons*, New Ulm, *Juni*, and the Red river valley, *Upham*.

P. Senega, L. Seneca Snakeroot.

Common, or frequent, throughout the state. Several tons of this medicinal root are dug and sold yearly by the Chippewa Indians in the region of Mille Lacs, the Crow Wing river and the White Earth reservation, the price which they receive for it, when dried, being from 35 to 50 cents per pound.

P. polygama, Walt. Pink Polygala.

Sandy soil, St. Croix river, *Parry*; lake Pepin, *Miss Manning*; Saint Cloud, *Garrison*; Anoka county and Brainerd, *Upham*; lake of the Woods, *Dawson*.

P. paucifolia, Willd. Fringed Polygala.

Faribault, Rice county, *Miss Beane*. [Kaministiquia river, north of lake Superior, *Macoun*.] Rare.

LEGUMINOSÆ. PULSE FAMILY.

LUPINUS, Tourn. LUPINE.**L. perennis**, L. Wild Lupine. Perennial Lupine.

Common on light, sandy land from lake Pepin to the sources of the Mississippi river; also, Fergus Falls, *Leonard*. Rarely found with white flowers.

TRIFOLIUM, L. CLOVER.*T. arvense*, L. Rabbit-foot or Stone Clover.

Saint Cloud, Stearns county, *Campbell*. Rare.

T. pratense, L. Red Clover.

Frequently adventive throughout the state.

T. repens, L. White Clover. Shamrock.

Occurring like the last, already very abundant in many districts; also quite certainly indigenous through the north half of the state, *Clark, Upham*.

T. hybridum, L.* Alsike Clover.

Adventive, but scarcely established, Saint Cloud (sandy soil, on the grounds of the Normal School), *Campbell*. Rare.

T. procumbens, L. Yellow Clover. Low Hop-Clover.

Stearns county (both the type and the var. minus, Koch), *Campbell*; Saint Paul, Minneapolis and lake Minnetonka (sparingly adventive), *Roberts*; lake Pepin, *Miss Manning*. Rare.

MELILOTUS, Tourn. MELILOT. SWEET CLOVER. HART'S CLOVER.*M. officinalis*, Willd. Yellow Melilot.

Goodhue county, *Sandberg*; Minneapolis (frequent), *Roberts*; Stearns county, *Garrison*; Blue Earth county, *Leiberg*. South.

M. alba, Lam. White Melilot.

Throughout the south half of the state. More frequent than the preceding.

MEDICAGO, L. MEDICK.*M. sativa*, L. Lucerne. Alfalfa.

Escaped from cultivation, Blue Earth county, *Leiberg*; Minneapolis, *Winchell*.

* *Trifolium hybridum*, L. Almost glabrous; leaflets obovate or oblong; stipules oblong, tips triangular; heads axillary, peduncled, globose; pedicels elongate, at length reflexed; flowers [whitish, rose-tinted] drooping; calyx-tube campanulate, gibbous; teeth subulate, nearly equal, unaltered in fruit. *Hooker's Students' Flora of the British Islands*. (See *Botanical Gazette*, vol. vii, pp. 121 and 135.)

HOSACKIA, Dougl. **HOSACKIA**.**H. Purshiana**, Benth.* **Hosackia**.

Gravelly shore of Swan lake, section 7, Underwood, Redwood county (leaves about $\frac{1}{4}$ inch long, very short-petioled, of three oblong acute leaflets, the lateral ones oblique in their lower half), *Upham*. Southwest.

PSORALEA, L. **PSORALEA**.**P. tenuiflora**, Pursh. (P. floribunda, Nutt.) **Psoralea**.

Cottonwood county, *Holzinger*. Southwest

P. argophylla, Pursh. **Silvery-leaved Psoralea**.

Abundant in all the prairie portion of the state; extending northeast to the upper Mississippi river, *Garrison*. (See note in *American Naturalist*, vol. xvii, p. 414.)

P. esculenta, Pursh. **Dakota Turnip**. **Pomme blanche**. **Pomme de Prairie**. **Pomme de Terre**.

Common southwestward; extending east to the rising ground east of Red river prairie, *Dawson*, the Roseau river, *Scott*, Morrison county, *Upham*, Minneapolis (rare, found close east of lake Calhoun), *Griswold*, *Roberts*, and Blue Earth county, *Leiberg*. "Pomme de Prairie of the French voyageurs; *Tipisnáh* of the Sioux Indians. It occurs over a wide range of country between the Mississippi and the Rocky Mountains, and is a characteristic plant of the Coteau des Prairies. The root, frequently attaining the size of a hen's egg, is of a regular, cylindric, ovoid shape, consisting of a thick, leathery envelope, easily separating when fresh from its smooth internal part. The latter is of a friable texture, except towards the axis, where some ligneous fibrés are intermixed. When dry, it acquires a sweetish taste, and is easily pulverized, affording a light, starchy flour, suitable for all the uses of the ordinary article. When growing its aspect is that of a Lupine. It selects a dry, gravelly, but not barren soil." *Parry*.

The Dakota (Sioux) name of the river in western Minnesota, well known as the Pomme de Terre, refers to this plant. *Riggs' Dakota Dictionary*, p. 171.

DALEA, L. **DALEA**.**D. alopecuroides**, Willd. **Dalea**.

Spirit lake, Iowa, *Geyer*; and doubtless in the adjoining portions of Minnesota. Southwest.

PETALOSTEMON, Michx. **PRAIRIE CLOVER**.**P. violaceus**, Michx. **Purple Prairie Clover**.

Abundant in all the prairie portion of the state; extending northeast to the upper Mississippi river, *Houghton*.

* **HOSACKIA**, Dougl. Calyx-teeth nearly equal. Petals free from the stamens, nearly equal; standard often remote from the rest, ovate or roundish; keel curved, obtuse or somewhat acutely beaked. Stameus diadelphous; anthers uniform. Pod linear, compressed or nearly terete, sessile, several-seeded, with partitions between the seeds. Herbaceous or rarely woody, with pinnate 2- to many-foliolate leaves; stipules mostly minute and gland-like; flowers in axillary sessile or pedunculate umbels, yellow, often becoming brownish.

HOSACKIA PURSHIANA, Benth. Annual, usually a foot high or more, and more or less silky-villous: leaflets 1 to 5, ovate to narrowly lanceolate, 2 to 9 lines long; stipules gland-like; flowers small, yellow, on peduncles exceeding the leaves, bracteate with a single leaflet; calyx-teeth linear, much exceeding the tube, about equaling the corolla; pod linear, straight, smooth, an inch long, 5- to 7-seeded. *Watson in Botany of Wheeler's Surveys west of the One Hundredth Meridian*.

P. candidus, Michx. White Prairie Clover.

Abundant, with same range as the last; excepting that it is less common in the north part of the Red river valley, *Upham*.

P. villosus, Nutt. Silky Prairie Clover.

Common on sandy land, from lake Pepin, *Miss Manning*, Goodhue county, *Sandberg*, and the barrens of the St. Croix river, *Parry*, to Minneapolis, Lac qui Parle, and Polk county, *Upham*.

AMORPHA, L. FALSE INDIGO.**A. fruticosa**, L. False Indigo. "River Locust."

Common through the south half of the state, in the Red river valley, *Upham*, and to the upper Mississippi river, *Garrison*.

A. canescens, Nutt. Lead-Plant. "Shoe-strings."

Abundant, with the same range as the last. The common name alludes to its long tough roots, which are troublesome in plowing.

A. micropylla, Pursh.* (A. *nana*, Nutt.) Dwarf False Indigo.

Common from the Blue Earth river, *Parry*, and Chippewa, Swift and Grant counties, *Roberts*, southwestward; also common, or frequent, throughout the Red river valley, *Upham*.

ROBINIA, L. LOCUST-TREE.**R. Pseudacacia**, L. Common Locust-tree. False Acacia.

Adventive, Minneapolis, *Winchell*.

TEPHROSIA, Pers. HOARY PEA.**T. Virginiana**, Pers. Goat's Rue. Catgut.

Lapham. Hart, Winona county, *Winchell*; at head of lake Pepin, *Sandberg*, Washington county, *Juni*. South.

ASTRAGALUS, L. MILK-VETCH.**A. caryocarpus**, Ker. Ground Plum.

Common, often abundant in all the prairie portion of the state; extending northeast to the upper Mississippi river, *Garrison*. "When the pods, which are nearly solid, have reached the size of hazel-nuts, they prove a valuable addition to the list of early vegetables. Cooked like green peas, they make a pleasing dish, intermediate in taste and flavor between early peas and asparagus." *Arthur*.

A. Plattensis, Nutt., var. **Tennesseensis**, Gray. Ground Plum.

Grant county, *Roberts*; Fergus Falls, *Leonard*. Southwest.

A. Canadensis, L. Milk-Vetch.

Common, or frequent, throughout the state; abundant in the Red river valley, *Upham*.

***AMORPHA MICROPHYLLA**, Pursh. Nearly smooth, dwarf; leaves with very short petioles, obtuse at both ends; spikes short, solitary; calyx nearly naked, pedicellate, teeth all very acuminate; legumes 1-seeded. From 1 to 2 feet high; flowers purple and fragrant. A very elegant little shrub. *Pursh's Fl. Amer.*, quoted by *Arthur* (*Contributions to the Flora of Iowa*, No. V.), who adds: "This compact little shrub is abundant on the dry prairies of northwestern Iowa. It flowers in May, and not in July and August as stated by Pursh. The leaflets are oblong, conspicuously punctate, and in 10—20 pairs."

A. adsurgens, Pall.* Milk-Vetch.Red river valley, *Scott, Macoun.* West.**A. hypoglottis**, L.† Milk-Vetch.Plains near Pembina, *Douglas, Chickering, Havard.* Red river prairie, *Dawson.* West.**A. gracilis**, Nutt.‡ Milk-Vetch.Minnesota, *Watson.* Southwest.**A. Cooperi**, Gray. Cooper's Milk-Vetch.Upper Mississippi river, *Garrison; lake Pepin, Miss Manning.* Rare.**A. flexuosus**, Dougl.§ Milk-Vetch.Red river prairie, *Douglas, Macoun, Dawson, Scott.* West.**OXYTROPIS**, DC. Oxytropis.**O. Lamberti**, Pursh. Oxytropis.

Frequent or common, westward; extending east to Worthington (rare) *Foote, Cottonwood county, Holzinger, Glenwood* (common, with flowers bright rose-purple, changing later to blue), *Upham, Douglas county, Mrs. Terry, Fergus Falls, Leonard, and the Red river valley, Douglas, Macoun.*

**ASTRAGALUS ADSURGENS*, Pall. Perennial, cinereous with minute appressed pubescence or glabrate; stems rather stout, 4 to 18 inches high, ascending or decumbent; stipules scarious, mostly united at base; leaflets 10 pairs, 6 to 9 lines long, narrowly or linear-oblong; spike dense, at length oblong or cylindric; flowers purplish, medium sized, ascending; calyx-tube rather long-campanulate, twice exceeding the setaceous teeth, subvillous with light or dark hairs; pod coriaceous, pubescent, sessile, ascending, ovate-oblong (4 to 5 lines in length), straight, usually triangular-compressed, with a dorsal sulcus, and 2-celled by the intruded dorsal suture, many-ovuled. *Watson's Rep. in King's Expl. of the Fortieth Parallel*, following *Gray's Revis.*, *Proc. Amer. Acad.*, vol. vi.

†*ASTRAGALUS HYPOGLOTTIS*, L. Perennial, with a rather loose pubescence, or nearly glabrous; stems 6 inches to 2 feet long, slender, diffusely procumbent or ascending; stipules subfoliaceous and more or less sheathing; leaflets 7 to 10 pairs, oblong, obtuse or retuse; heads rather many-flowered; corolla violet, $\frac{1}{2}$ inch long; legume coriaceous, ovate and triangular, silky-villous, very shortly stipitate, 2-celled by the intruded dorsal suture, and but 6- to 8-seeded. From southern Colorado northward along the Rocky Mountains and Red River Valley to the Arctic Circle and Alaska. June to September. *Watson's Rep. in King's Expl. of the Fortieth Parallel*, following *Gray's Revision*.

‡*ASTRAGALUS GRACILIS*, Nutt. Perennial, somewhat appressed pubescent, slender, erect or ascending, a foot high or more: leaflets three to five pairs, narrowly linear, half an inch long or less: flowers very small, white or purplish, in an elongated open long-peduncled spike: calyx-teeth very short: pods coriaceous, sessile, pubescent and rugose, 2 or 3 lines long, ovate-oblong and obcompressed, 1-celled, concave on the back, and the ventral suture prominent. *Watson in Botany of Wheeler's Surveys west of the One Hundredth Meridian*.

§*ASTRAGALUS FLEXUOSUS*, Dougl. Ashy-puberulent; stems ascending, 1 foot high; flexuous; leaflets oblong or cuneate-linear, obtuse or retuse; peduncles exceeding the leaves; racemes mostly elongated, loose; flowers 4 lines long, white or purplish; calyx hoary-pubescent, teeth three times shorter than the tube, pod cylindric, 8 to 11 lines long, 2 lines broad, puberulent, thinly coriaceous, straight or sub-incurved; stipe very short, but evident. *Gray's Revision of Astrag.*, *Proc. Amer. Acad.*, vol. vi.

O. splendens, Dougl.* Silvery Oxytropis.

"A most elegant plant, with its crowded, silvery, silky-villous foliage and spikes, and deep blue corollas. It was gathered on the Chippewa river" [in Minnesota]. *Gray* in *Pacific Railroad Report*. Glenwood, Pope county, *Upham*; Pembina, *Douglas*, *Havard*. West.

GLYCYRRHIZA, Tourn. LICORICE.**G. lepidota**, Pursh. Wild Licorice.

Abundant westward, from St. Vincent to Iowa; extending east to lake Pepin, *Miss Manning*, Freeborn county and Minneapolis, *Upham*, the St. Croix river, *Parry*, Stearns county, *Campbell*, and the lake of the Woods at the mouth of Rainy river, *Macoun*; but not reported in the region of the upper Mississippi river and farther northeast.

HEDYSARUM, Tourn. HEDYSARUM.**H. boreale**, Nutt. HEDYSARUM.

Lapham. [North shore of lake Superior, *Ayassiz*.] North.

DESMODIUM, DC. TICK-TREFOIL.**D. nudiflorum**, DC. Tick-Trefoil.

St. Croix river, *Parry*; Anoka county, also New Ulm, *Juni*; Blue Earth county, *Gedge*; Redwood Falls, *Pemberton*. Infrequent. South.

D. acuminatum, DC. Tick-Trefoil.

Common southward; extending north to the upper Mississippi river, *Garrison*; Fergus Falls, *Leonard*.

D. rotundifolium, DC. Round-leaved Tick-Trefoil. Trailing Tick-Trefoil.

Upper Mississippi river, *Garrison*. Infrequent. South.

D. canescens, DC. Tick-Trefoil.

Otter Tail county, *Upham*; Nicollet county, *Aiton*; Blue Earth county, *Leiberg*; lake Pepin, *Miss Manning*. Infrequent. South.

D. cuspidatum, Hook. Tick-Trefoil.

Lapham. Upper Mississippi river, *Garrison*. Infrequent. South.

D. Dillenii, Darling. Tick-Trefoil.

Stearns county, *Garrison*; Douglas county, *Mrs. Terry*; Minneapolis, *Kassabie*; Steele county (common), *Upham*. South.

D. paniculatum, DC. Tick-Trefoil.

Upper Mississippi river, *Garrison*; Winona county, *Holzinger*; Hesper, Iowa, *Mrs. Carter*. Infrequent. South.

D. Canadense, DC. Tick-Trefoil.

Common through the south half of the state, and perhaps northward; found at the lake of the Woods, *Dawson*, *Burgess*, and extending into Manitoba to the north end of lake Winnipeg, *Hooker*.

**OXYTROPIS SPLENDENS*, Dougl. Acaulescent, silvery, silky-villous throughout, 6 to 12 inches high; leaflets somewhat verticillate, 3 to 6 together, very numerous, lanceolate, very acute, usually 5 to 10 lines long; flowers in an oblong spike, erect, spreading, usually deep blue; peduncles exceeding the leaves; flowers not much surpassing the calyx; pod ovate, erect. *Porter and Coulter's Flora of Colorado*.

LESPEDEZA, Michx. BUSH-CLOVER.

L. repens, Barton. (Including *L. procumbens*, Michx.) Bush-Clover
Lapham. Rare. South.

L. violacea, Pers. Bush-Clover.

Blue Earth county, *Leiberg*; Brown county, *Juni*. Infrequent. South.

[*L. reticulata*, Pers. (*L. violacea*, Pers., var. *sessiliflora*, Don) probably occurs in the south part of the state.

L. reticulata, Pers., var. **angustifolia**, Maxim. (*L. violacea*, Pers., var. *angustifolia*, Torr. & Gray.) Bush-Clover.

Cottonwood county, *Holzinger*. Infrequent. South.

L. hirta, Ell. Bush-Clover.

Lake Pepin, *Miss Manning*; Cottonwood county, *Holzinger*. Infrequent. South.

L. capitata, Michx. Bush-Clover.

Common, or frequent, through the south half of the state; extending north at least to Cass county, *Upham*.

L. leptostachya, Engelm.* Bush-Clover.

Southeastern Minnesota, *T. J. Hale*; Emmet county, Iowa (common), *Cratty*; Rock county (common). *Leiberg*. South.

VICIA, Tourn. VETCH. TARE.

V. sativa, L. Vetch.

Lake Pepin, *Miss Manning*. Rare.

V. Cracca, L. Blue Vetch.

Minneapolis, and Carlton county, *Roberts*; White Bear, Ramsey county, *Miss Field*. Rare. South.

V. Caroliniana, Walt. Pale Vetch. Carolina Vetch.

Frequent through the south half of the state; extending north to the upper Mississippi river, *Garrison*, and Fergus Falls, *Leonard*.

V. Americana, Muhl. Purple Vetch. American Vetch.

Common throughout the state.

LATHYRUS, L. VETCHLING. EVERLASTING PEA.

L. maritimus, Bigelow. Beach Pea.

Common on beaches of gravel and sand, north shore of lake Superior, *Juni*, *Roberts*; lake of the Woods, *Dawson*.

L. venosus, Muhl. Vetchling.

Common through the south half of the state, and in the Red river valley; extending northeast to the upper Mississippi river, *Garrison*, and Kaministiquia river, *Macoun*.

L. ochroleucus, Hook. Pale Vetchling.

Common, often abundant, throughout the state.

***LESPEDEZA LEPTOSTACHYA**, Engelm. Clothed with appressed, silky pubescence; leaves linear; petiole longer than the terminal petiolule; spikes paniculate, slender, somewhat loosely flowered, rather longer than the peduncle; legume equal to or slightly longer than the calyx. . . . Has passed for *L. angustifolia*, from which its slender spikes and paniculate habit at once distinguish it. *Gray, Proc. Amer. Acad. of Arts and Sciences*, vol. xii.

L. paluster, L. Marsh Vetchling.

Common throughout the state.

L. paluster, L., var. **myrtifolius**, Gray. Marsh Vetchling.

Blue Earth county, *Leiberg*; Stearns county, *Campbell*; Fergus Falls, *Leonard*.

APIOS, Boerhaave. GROUND-NUT. WILD BEAN.

A. tuberosa, Moench. Ground-nut. Dakota Potato. Pomme de Terre.

Common, or frequent, through the south half of the state; extending north to the upper Mississippi river. "Pomme de Terre of the French voyageurs; *Mdo*, or wild potato, of the Sioux Indians," *Parry*.

PHASEOLUS, L. KIDNEY BEAN.

P. perennis, Walt. Wild Bean.

Saint Paul, *Kelley*; St. Croix Falls, *Miss Field*; upper Mississippi river, *Garrison*; Pembina, *Harvard*.

P. diversifolius, Pers. Wild Bean.

Minneapolis, *Twining*; Blue Earth county, *Leiberg*; New Ulm, *Juni*; Emmet county, Iowa (rare), *Cratty*. Southeast.

P. pauciflorus, Benth. Wild Bean.

Frequent through the south half of the state; extending north to the head-waters of the Mississippi river, *Garrison*.

AMPHICARPEA, Ell. HOG PEA-NUT.

A. monoica, Ell. Hog Pea-nut.

Common throughout the state, excepting perhaps far northward.

BAPTISIA, Vent. FALSE INDIGO.

B. tinctoria, R. Br. Wild Indigo.

Anoka county, and White Bear, Ramsey county, *Juni*; near Saint Paul, *Mrs. Terry*; lake Pepin, *Miss Manning*. Infrequent. Southeast.

B. leucantha, Torr. & Gray. White False Indigo.

Frequent through the south half of the state; extending north to the upper Mississippi river, *Garrison*, and Fergus Falls, *Leonard*.

B. leucophaea, Nutt. Yellowish Wild Indigo.

Common in the most southern counties across the state; extending north to lake Pepin, *Miss Manning*, Rice county, *Upham*, and Minneapolis, *Kassabe*.

CERCIS, L. RED-BUD. JUDAS-TREE.

C. Canadensis, L. Red-bud. Judas-tree.

Southern Minnesota, *Sargent's Catalogue of Forest Trees, Tenth Census of U. S.* If found in this state, it must be rare or local, in the most southeastern counties.

CASSIA, L. Senna.

C. Chamaerista, L. Partridge Pea. Sensitive Pea.

Frequent, or common, throughout the southern third of the state; less frequent either north to the upper Mississippi river, *Houghton*.

GYMNOCLADUS, Lam. KENTUCKY COFFEE-TREE.**G. Canadensis**, Lam. Kentucky Coffee-tree.

Houston county, near Dakota, Winona county, and Jordan, Scott county, *Winchell*; Lake City, *Miss Manning*; Nicollet county (forming groves in the woods opposite to Mankato; attaining a diameter of six inches; wood very hard, straight-grained, valuable), *Leiberg*; New Ulm, *Juni*; Sleepy Eye, Brown county, *Upham*. Infrequent. South.

DESMANTHUS, Willd. DESMANTHUS.**D. brachylobus**, Benth. Desmanthus.

Swan lakes, northwestern Redwood county, *Upham*; Spirit lake, Iowa, *Geyer*. South.

ROSACEÆ. ROSE FAMILY.

PRUNUS, Tourr. PLUM, CHERRY, ETC.**P. Americana**, Marshall. Wild Plum.

Common, often abundant, throughout the state. Usually from 10 to 20 feet high; but north of lake Superior seldom exceeding 12 feet in height, and often fruiting at 3 or 4 feet, *Clark*. Fruit valuable, pleasant-flavored, rarely bitter, mostly purple, but not infrequently varying from that color to yellow.

P. pumila, L. Dwarf Cherry. Sand Cherry.

Common on sandy land through the north half of the state, and south to Minneapolis; local and rare farther south, as at Castle Rock and in Goodhue county, *Sandberg*, lake Pepin, *Miss Manning*, and section 33, Hart, Winona county, *Winchell*.

P. Pennsylvanica, L. Wild Red Cherry. Bird Cherry.

Common throughout the state, excepting southwestward, where it occurs rarely. Usually 15 to 30 feet high; but north of lake Superior its ordinary height is about 12 feet, with a diameter of 2½ inches, *Clark*.

P. Virginiana, L. Choke-Cherry.

Common throughout the state.

P. serotina, Ehrh. Wild Black Cherry.

Common throughout the state, excepting far northward, where it is absent or rare. *Macoun* reports it as far west as the Kaministiquia river, lake Superior.

NEILLIA, Don. NINE-BARK.**N. opulifolia**, Benth. and Hook. (*Spiraea opulifolia*, L.) Nine-Bark.

Frequent throughout most of the state, but rare southward and westward; abundant north of lake Superior, especially along the shore, "clinging to bare rocks, often within the sweep of the waves," *Juni*, *Roberts*; Rainy river and lake of the Woods, *Macoun*.

SPIRAEA, MEADOW-SWEET. SPIRAEA.**S. salicifolia**, L. Common Meadow-Sweet. Willow-leaved Spiraea.

Queen of the Meadow.

Common throughout the state.

S. tomentosa, L. Hardhack. Steeple-Bush.

Frequent, in some places plentiful, in Hennepin, Anoka, Chisago, Isanti and Kanabec counties, *Roberts*, *Juni*, *Upham*. East. [It is also found at lake Winnipeg, *Richardson*.]

AGRIMONIA, Tourn. AGRIMONY.

A. Eupatoria, L. Common Agrimony.
Frequent, often common, throughout the state.

GEUM, L. AVENS. GEUM.

G. album, Gmelin. White Avens.

Frequent, or common, throughout the state; extending northward to the north shore of lake Superior, *Juni*, and Pembina, *Havard*.

G. Virginianum, L. Virginian Avens.

Minnesota river, *Parry*; Blue Earth county, *Leiberg*; Goodhue county, *Sandberg*; Hespe, Iowa, *Mrs. Carter*. Infrequent. South.

G. macrophyllum, Willd. Large-leaved Avens.

Abundant north of lake Superior, *Roberts*; extending south to Sherburne county, *Upham*, Anoka county and New Ulm, *Juni*, and lake Minnetonka, *Roberts*.

G. strictum, Ait. Strict Avens.

Throughout the state; common northward, frequent southward.

G. rivale, L. Water Avens. Purple Avens.

Common, or frequent, through the north half of the state; extending south to lake Pepin, *Miss Manning*, Northfield, Rice county, *Chaney*, and Nicollet county, *Aiton*.

G. triflorum, Pursh. Three-flowered Avens.

This species, "attractive by reason of its long, plumose styles, and dissected, fern-like leaves," rare in states farther east, is common, or frequent, on dry somewhat sandy land throughout Minnesota, excepting northeastward, in which direction it extends at least to the head of lake St. Croix, Brainerd, and the upper Mississippi river.

WALDSTEINIA, Willd. DRY or BARREN STRAWBERRY.

W. fragarioides, Tratt. Barren Strawberry.

Stearns county, *Garrison*; St. Croix Falls and Stillwater, *Miss Field*. Infrequent. East.

POTENTILLA, L. CINQUE-FOIL. FIVE-FINGER. POTENTILLA.

P. Norvegica, L. Cinque-foil.
Common throughout the state.

P. supina, L. (P. paradoxa, Nutt.) Cinque-foil.

Lake Pepin, *Miss Manning*; sandy shores of lake Minnetonka, *Roberts*, *Herrick*; Anoka county and New Ulm, *Juni*; Martin county (rare), *Cratty*; Stearns county, *Garrison*; Grant county, *Roberts*. [Devil's lake, Dakota, *Geyer*, and northwestward.] South and west.

P. Canadensis, L. Common Cinque-foil or Five-Finger.
Common, or frequent, throughout the state, excepting perhaps far northward.

P. Canadensis, L., var. **simplex**, Torr. and Gray. Cinque-foil. Five-Finger.

Lake Pepin, *Miss Manning*; New Ulm, *Juni*; Emmet county, Iowa (rare), *Cratty*; Minneapolis (common), *Roberts*; Sherburne county (common), *Upham*. [North of lake Superior, *Agassiz*.]

P. argentea, L. Silvery Cinque-foil or Five-Finger.

Winona county, *Holzinger*; Saint Paul, *Miss Cathcart*; Minneapolis, *Herrick, Up-ham*; Washington county, *Leonard*; St. Croix Falls, *Miss Field*; Anoka county, *Juni*; near Green lake, Kandiyohi county, *Mrs. Terry*. [Sheyenne river, Dakota, *Geyer*.] Infrequent.

P. Pennsylvanica, L., var. *strigosa*, Pursh.* Cinque-foil. *Potentilla.*

Granite knolls beside the Minnesota river in the west part of Nicollet county, *Parry*; Redwood Falls, *Pemberton*; Worthington (common), *Foote*; Luverne, *Leiberg*; Pipestone quarry, *Mrs. Bennett*; Fergus Falls, *Leonard*. [Pembina mountain, Dakota, *Havard*. "The common form in the prairie region" of Manitoba, *Macoun*.] West.

P. Pennsylvanica, L., var. *bipinnatifida*, Torr. & Gray.** Cinque-foil.

Pipestone county, *Mrs. Bennett*; plains of the Red river, *Douglas, Macoun*. West.

P. Hippiana, Lehm. † Cinque-foil. *Potentilla.*

Plains of the Red river, *Drummond, Macoun*. West.

P. effusa, Dougl.‡ Cinque-foil. *Potentilla.*

Higher parts of the Red river valley, plentiful, *Douglas, Macoun*. West.

P. arguta, Pursh. Cinque-foil. *Potentilla.*

Common, often abundant, throughout the state.

P. Anserina, L. Silver-Weed.

Common, or frequent, throughout the north half of the state; extending south at least to Minneapolis and Murray county, *Upham*.

P. fruticosa, L. Shubby Cinque-foil.

Abundant north of lake Superior, especially along its rocky shore, *Juni, Roberts*; also found near the Tamarack river in T. 158, R. 46, Marshall county, *Upham*, and at the eastern border of the Red river prairie near the international boundary, *Dawson, Scott*. (Not yet reported, but doubtless occurring rarely, in the south half of the state; found at Decorah, Iowa, *Arthur*.) North.

* *POTENTILLA PENNSYLVANICA*, L., var. *STRIGOSA*, Pursh. Low, 6 to 15 inches high; stems erect, leafy, rather stout; leaves mostly tomentose on both surfaces, paler beneath, deeply pectinate-divided or pinnatifid, segments linear, entire, with revolute margins; stipules laciniate. *Porter and Coulter's Flora of Colorado*, following *Watson's Revision, Proc. Amer. Acad.*, vol. viii.

** *POTENTILLA PENNSYLVANICA*, L., var. *BIPINNATIFIDA*, Torr. & Gray. Leaflets crowded (3 to 5) and often almost palmate, deeply pinnatifid (silky-pubescent but not canescent above); the segments linear, elongated, mostly spreading. *Torrey and Gray's Flora of N. A.*

† *P. HIPPIANA*, Lehm. Densely white-tomentose and silky throughout; the upper surface of the leaves a little darker; stems ascending, 1 to 1½ feet high, slender, branching above into a diffuse cyme, stipules usually entire; leaves pinnate, occasionally digitate; leaflets 5 to 11, cuneate-oblong, 1 to 2 inches long, obtuse, incisely toothed, at least towards the apex, margins not revolute; pedicels slender; bractlets narrow; petals 2½ to 3½ lines long, exceeding the calyx; styles filiform, not glandular at base, terminal; carpels 10 to 30. *Porter and Coulter's Flora of Colorado*, following *Watson's Revision*.

‡ *P. EFFUSA*, Dougl. Canescently tomentose with scattered villous hairs; stems ascending, diffusely branched above, 4 to 12 inches high; stipules lanceolate, entire or incised; leaflets 5 to 11, interruptedly pinnate, the alternate ones often smaller, cuneate-oblong, coarsely incised-serrate or dentate, the smaller leaflets 3- to 5-toothed; pedicels slender; sepals and the much smaller bractlets acuminate, 2 to 3 lines long, equaling or exceeding the obovate petals; carpels 10. *Porter and Coulter's Flora of Colorado*, following *Watson's Revision*.

P. tridentata, Sol. Three-toothed Cinque-foil.

Frequent through the north part of the state; common along the rocky north shore of lake Superior and on Minnesota Point, at the last named locality growing in the dry loose sand, *Roberts, Juni*; infrequent, or rare, southward to Stearns county, *Mrs. Blaisdell*, White Bear, Ramsey county, *Miss Field*, Lake City, *Mrs. Ray*, and Hesper, Iowa, *Mrs. Carter*.

P. palustris, Scop. Marsh Five-Finger.

Throughout the state; common northward, frequent southward.

FRAGARIA, Tourn. STRAWBERRY.**F. Virginiana**, Duchesne. Wild Strawberry.

Common throughout the state.

F. Virginiana, Duchesne, var. **Illinoensis**, Gray. Wild Strawberry.

Dakota county, *Winchell*; Anoka and Sherburne counties (common), *Upham*; abundant in Martin county (and in Emmet county, Iowa), *Cratty*.

F. vesca, L. Wild Strawberry. Wood Strawberry.

Mostly in woods; common through the north half of the state and southwestward, frequent southeastward.

RUBUS, Tourn. BRAMBLE.**R. Dalibarda**, L. (*Dalibarda repens*, L.) Dalibarda.

Lapham. Green Lake, Kandiyohi county, *Mrs. Terry*. Rare. East.

[*R. odoratus* L., which occurs in northern Michigan and Wisconsin, probably does not extend into Minnesota.]

R. Nutkanus, Mocino. White Flowering-Raspberry.

Abundant north of lake Superior, *Juni*, *Roberts*; and extending to the sources of the Mississippi, *Houghton*. "Its showy white blossoms are about as large as those of the wild rose. The fruit is large and looks tempting but has a peculiar acid flavor, which makes it inferior to that of *Rubus strigosus*." *Juni*. North.

R. arcticus, L.* Arctic Raspberry.

Peat bog, "northwest angle" of the lake of the Woods, *Macoun*. North.

R. triflorus, Richardson. Dwarf Raspberry.

Common, or frequent, through the north half of the state; extending south to New Ulm, *Juni*, Blue Earth county, *Leiberg*, and Hesper, Iowa, *Mrs. Carter*.

R. strigosus, Michx. Wild Red Raspberry.

Common throughout the state, excepting southwestward, where it occurs less frequently; very abundant northward.

R. occidentalis, L. Black Raspberry. Black-cap Raspberry. Thimbleberry.

Common through the south half of the state, and north to the White Earth reservation, the upper Mississippi river, and Pine county; rare or wanting northeastward. A variety bearing cream-colored fruit occurs on the bluffs of the Mississippi at Winona, *Winchell*.

**RUBUS ARCTICUS*, L. Stem low, herbaceous, sometimes dioecious, unarmed, sometimes pubescent, mostly erect, 1- to 2-flowered, leaves trifoliate; leaflets rhombic-ovate or obovate, coarsely and often doubly serrate, petiolulate; stipules ovate; sepals lanceolate, acute, often shorter than the obovate entire or emarginate (reddish) petals. *Torrey and Gray's Flora of N. A.*

R. villosus, Ait. High Blackberry.

Frequent, occasionally plentiful, throughout most of the state; but rare or wanting in some districts, especially southwestward and far northwest. Local.

R. villosus, Ait., var. **frondosus**, Torr. High Blackberry.

Between lake Superior and lake Winnipeg, *Richardson* (*Macoun*).

R. Canadensis, L. Low Blackberry. Dewberry.

Frequent, or common, through the east part of the state, extending west to Blue Earth county, *Leiberg*, Fergus Falls, *Leonard*, and the White Earth reservation, *Garrison*; north of lake Superior, *Agassiz*, *Macoun*.

R. hispida, L. Running Swamp-Blackberry.

Similar in range with the last. Minneapolis, *Griswold*; Sherburne county (common), *Upham*; Fergus Falls, *Leonard*; upper Mississippi river, *Garrison*.

ROSA, Tourn. ROSE.**R. Carolina**, L. Swamp Rose.

Houston county, *Winchell*; Blue Earth county, *Leiberg*; Northfield, *Chaney*; Morrison county, *Miss Babbitt*. Infrequent.

R. parviflora, Ehrh. (*R. lucida*, in *Manual*.) Dwarf Wild-Rose.

North of lake Superior (common), *Roberts*; White Earth reservation, *Garrison*; Kanabec county (common), *Upham*; St. Croix Falls, *Miss Field*; Hennepin and Fillmore counties, *Winchell*; Rice county, *Sperry*; Goodhue county, *Blake*, *Sandberg*.

R. blanda, Ait., var. **pubescens**, Crépin.* Early Wild Rose.

Common, often abundant, in all parts of the state; the only species of rose (but occurring in two varieties) in our prairie region, there varying in height from about one foot, or sometimes two feet on the prairie, to three or four feet in groves and thickets, or even six feet, according to *Roberts*, in Grant county.

R. blanda, Ait., var. **setigera**, Crépin.† Early Wild Rose.

Specimens collected in Minneapolis are referred by *Watson* to this variety, which probably occurs, less frequently than the preceding, throughout the state, being most common northward. ‡

CRATAEGUS, L. HAWTHORN. WHITE THORN.**C. coccinea**, L. Scarlet-fruited Thorn.

Frequent, occasionally common, through most of the state; extending "north to the international boundary, but not much beyond it," *Bell*. [Emerson and Winnipeg, Manitoba, *Dawson*, *Macoun*.]

C. tomentosa, L. Black Thorn. Pear Thorn.

Common, or frequent, throughout the state.

C. tomentosa, L., var. **pyrifolia**, Gray. Black or Pear Thorn.

Olmsted county, *Winchell*; American portage, near the international boundary west of lake Superior, *Macoun*.

C. tomentosa, L., var. **punctata**, Gray. Black or Pear Thorn.

Martin county, *Cratty*; Olmsted county and lake Minnetonka, *Winchell*; Minneapolis, *Upham*; Pembina, *Chickering*. Perhaps the typical species is less common than these varieties.

* *ROSA BLANDA*, Ait., var. *PUBESCENS*, Crépin. Leaflets more or less pubescent on the under side; upper part of the stems, as well as the branches and flowering branchlets, unarmed or nearly so. *Crépin's Monograph*.

† *ROSA BLANDA*, Ait., var. *SETIGERA*, Crépin. Leaflets glabrous or pubescent on the under side; stem not ordinarily more than a foot high, entirely covered with setaceous prickles. *Crépin's Monograph*.

C. subvillosa, Schrader. (*C. tomentosa*, L., var. *mollis*, Gray.) Downy Thorn.

Blue Earth county (common, becoming a tree twenty feet high), *Upham*; New Ulm, *Juni*; Emmet county, Iowa (rare), *Cratty*; Pipestone quarry, *Mrs. Bennett*. [North of lake Superior, *Bell, Macoun*.]

C. Crus-galli, L. Cockspur Thorn.

Winona, Fillmore, Mower, Freeborn and Scott counties, and the Big Woods, *Winchell*; lake Pepin, *Miss Manning*; Dodge county, *Harrington*; Rice county, *Sperry*; Hennepin county, *Simmons*; Fish-hook lake, Cass county, and the White Earth reservation, *Garrison*. ["In Manitoba a thorn which appears to be identical with this species is abundant." *Bell*.]

PIRUS (*Pyrus*), L. PEAR. APPLE.

P. coronaria, L. American Crab-Apple.

Common in the southeast part of the state; extending west to the Big Woods, and north to Ramsey and Hennepin counties, *Winchell*, and to Crow lake in southwestern Stearns county, *Upham*. The fruit, though bitterish, is frequently used for sauce.

P. arbutifolia, L. Choke-berry.

Frequent from Olmsted county, *Harrington*, and Faribault, *Miss Beane*, to Minneapolis, *Roberts*, Anoka county, *Juni*, and the St. Croix river, *Perry*. East.

P. arbutifolia, L., var. *melanocarpa*, Hook. Choke-berry.

Pine county (common), *Upham*; north of lake Superior, extending west to Sturgeon lake, Dawson route, *Macoun*. East.

P. Americana, DC. American Mountain-Ash.

Common through the north part of the state; extending south to northern Pine county, and to Mille Lacs. "A common tree north of lake Superior, attaining considerable size. Professor *Winchell* collected specimens where the trunk was at least 12 inches in diameter, and perfectly sound. Others, though unsound, were 15 and 16 inches." *Roberts*.

P. sambucifolia, Cham. & Schlecht. Elder-leaved Mountain Ash.

Common northward; extending south to Itasca lake, *Garrison*, and T. 137, R. 33, Wadena county, *Upham*; and rare farther south, as on the bluffs of the Mississippi at Winona, *Winchell*.

AMELANCHIER, Medic. JUNE-BERRY.

A. Canadensis, Torr. & Gray. (Including the var. *Botryapium*, Torr. & Gray.) Shad-bush. Service-berry.

Common throughout the state. (Usually from 10 to 30 feet high, but northeastward only attaining a height of 10 feet and diameter of 2½ inches; used by the Indians for snow-shoe frames. *Clark*.)

A. Canadensis, Torr. & Gray, var. **oblongifolia**, Torr. & Gray. Service-berry.

Common, or frequent, throughout the state.

A. Canadensis, Torr. & Gray, var. **oligocarpa**, Torr. & Gray. Service-berry.

Loon portage, Dawson route (near the international boundary), *Macoun*. North.

A. alnifolia, Nutt. (*A. Canadensis*, Torr. & Gray, var. *alnifolia*, Torr. & Gray.) Western June-berry.

Pembina, *Chickering*; White Earth reservation, *Garrison*; Hennepin county, *Roberts*; Faribault, *Miss Beane*; Lake City, *Mrs. Ray*. Frequent.

SAXIFRAGACEÆ. SAXIFRAGE FAMILY.

RIBES, L. Currant. Gooseberry.**R. Cynosbati, L.** Prickly Wild Gooseberry.

Common, often abundant, throughout the state. Much used, (as also the following smooth species,) before fully ripening, for sauce.

[Of *R. setosum*, Lindl., Prof. Gray writes: "I suspect that this species inhabits the northwestern shore of lake Superior. Botanists visiting that district should look for a species with pure white flowers, a half inch or less in length, with cylindrical tube, and stamens decidedly shorter than the lobes. . . . It takes its name from the slender scattered prickles on the branches; but these are sometimes wanting, this being an inconstant character in all the species. The young berries are either perfectly smooth and naked, or beset with a few bristly prickles. This is the *R. oxyacanthoides* of Hooker's Flora, but certainly not of Linneaus. It belongs to the Saskatchewan region, extending into Montana and Wyoming." *American Naturalist*, vol. x, pp. 271-2.

R. oxyacanthoides, L. (*R. hirtellum*, Michx.) Smooth Wild Gooseberry.

Common throughout the state, excepting perhaps southward, in which direction it extends at least to Goodhue county, Sandberg, Faribault, Miss Beane, and Fergus Falls, Leonard.

R. rotundifolium, Michx. Smooth Wild Gooseberry.

Notes by observers using Gray's *Manual* give this as common through the south half of the state, and less frequent northward to the St. Louis river, *Mrs. Herrick*, and Grand Marais, north of lake Superior, *Roberts*. Further investigation is needed, however, to decide whether *R. rotundifolium* occurs in Minnesota. Just as this is being printed, I learn from Mr. Arthur that Prof. Gray decides specimens of the common smooth wild gooseberry in Iowa (before regarded as *R. rotundifolium*) to be *R. gracile*, Michx. "*R. rotundifolium* Michx. is a species of the Alleghany Mountains, ranging northward and eastward into New York and the western borders of Massachusetts." (Gray in *American Naturalist*, vol. x.) Probably most, or perhaps all, of the supposed observations of this species in Minnesota belong instead to the next.

R. gracile, Michx. (*R. Missouriense*, Nutt.)* Missouri Gooseberry.

Lapham. See remarks under the preceding species.

R. lacustre, Poir. Swamp Wild Gooseberry.

Lapham. North of lake Superior, *Juni, Roberts.* North.

R. prostratum, L'Her. Fetid Currant. Skunk Currant.

Common north of lake Superior, *Juni, Roberts*; St. Louis river, *Mrs. Herrick*; upper Mississippi river, *Garrison*. North.

R. floridum, L'Her. Wild Black Currant.

Common, or frequent, throughout the state.

R. rubrum, L. Red Currant.

Frequent through the north half of the state; extending south to southeastern Pipe county and Benton county, *Upham, Fish-hook lake, Cass county, Garrison, and Fergus Falls, Leonard.*

R. aureum, Pursh. Buffalo Currant. Missouri Currant.

Escaped from gardens: *Mankato, Leiberg; Minneapolis, Kassabe.*

**RIBES GRACILE*, Michx. Flowers 1 to 4 on the slender peduncle, white or whitish, narrow, with calyx-lobes longer than the tube and shorter than the half-inch stamens; filaments almost capillary, generally connivent or closely parallel, and soon conspicuously longer than the oblong-linear calyx-lobes; flower with barely a slight tinge of green; berry smooth, large, purple, prized in cultivation under the name of Missouri Gooseberry. It ranges from Tennessee and Illinois to the northern borders of Texas, and northwestward into the Rocky Mountains. Gray in *American Naturalist*, vol. x.

PARNASSIA, Tourn. GRASS OF PARNASSUS.**P. parviflora**, DC. Grass of Parnassus.North shore of lake Superior, *Macoun*.**P. palustris**, L. Grass of Parnassus.North shore of lake Superior, *Juni*; Fort Francis, Rainy river, *Macoun*; common in the Red river valley, along the Pembina and Fort Garry trails, from Tamarack river northward into Manitoba, *Upham*; extending southward to Stearns county, *Garrison*, *Mrs. Blaisdell*.**P. Caroliniana**, Michx. Grass of Parnassus.Common through the south half of the state, and north to the upper Mississippi river, *Garrison*, and Polk county, *Upham*; also, lake of the Woods, *Burgess* (*Macoun*), and between the lake of the Woods and Red river, "probably about the northwestern limit of the species," *Dawson*; Pembina, *Havard*.**SAXIFRAGA**, L. SAXIFRAGE.**S. tricuspidata**, Retz. Saxifrage.North shore of lake Superior, doubtless in Minnesota; Isle Royale, *Whitney*.**S. Aizoon**, Jacq. Saxifrage.North shore of lake Superior, *Macoun*, *Ellis*; Isle Royale, *Whitney*.**S. Virginiana**, Michx. Early Saxifrage.*Lapham*. Hastings, Dakota county, *Mrs. Ray*. Rare.**S. Pennsylvanica**, L. Swamp Saxifrage.

Common, or frequent, throughout the state.

SULLIVANTIA, Torr. & Gray. SULLIVANTIA.**S. Ohionis**, Torr. & Gray. Sullivantia.Rock bluffs of the Mississippi river, near Dakota, Winona county, *Winchell*. Rare.**HEUCHERA**, L. ALUM-ROOT.**H. Americana**, L. Common Alum-root.St. Louis river, *Houghton*; Cass lake, *Schoolcraft*; Stearns county, *Campbell*; Stillwater, *Miss Field*; Goodhue county, *Sandberg*; lake Pepin, *Miss Manning*; Winona county, *Holzinger*. Infrequent.**H. hispida**, Pursh. Alum-root.Common through the south half of the state, and in the Red river valley; extending northeast to the lake of the Woods, *Dawson*, the east end of Rainy lake, *Macoun*, and the upper Mississippi river, *Garrison*.**MITELLA**, Tourn. MITER-WORT. BISHOP'S-CAP.**M. diphylla**, L. Two-leaved Miter-wort.Common, or frequent, through the south half of the state; extending north at least to Fergus Falls, *Leonard*, Saint Cloud, *Campbell*, and the north shore of lake Superior, *Agassiz*.**M. nuda**, L. Naked Miter-wort.Common through the north half of the state; extending south at least to Stearns county, *Campbell*, and Minneapolis, *Roberts*.

TIARELLA, L. FALSE MITER-WORT.**T. cordifolia, L.** False Miter-wort.

Lapham. Lake City, *Miss Beane*; Blue Earth county, *Gedge*. Infrequent.

CHRYSOSPLENIUM, Tourn. GOLDEN SAXIFRAGE.**C. Americanum, Schwein.** Golden Saxifrage.

Lake Superior to the Mississippi, *Houghton*, Stearns county, *Mrs. Blaisdell*. Infrequent. North.

CRASSULACEÆ. ORPINE FAMILY.

PENTHORUM, Gronov. Ditch Stone-crop.**P. sedoides, L.** Ditch Stone-crop.

Common, or frequent, through the south part of the state; extending north to the upper Mississippi river, *Garrison*.

SEDUM, Tourn. STONE-CROP. ORPINE.**S. Telephium, L.** Garden Orpine. Live-for-ever.

Occasionally escaped from cultivation, *Minneapolis*, *Upham*.

HAMAMELACEÆ. WITCH-HAZEL FAMILY.

HAMAMELIS, L. WITCH-HAZEL.**H. Virginiana, L.** Witch-Hazel.

Lapham. Southeastern Winona county, between Richmond and Dakota, *Winchell*. Rare. Southeast.

HALORAGEÆ. WATER-MILFOIL FAMILY.

MYRIOPHYLLUM, Vaill. WATER-MILFOIL.**M. spicatum, L.** Water-Milfoil.

Frequent, or common, throughout the state.

M. verticillatum, L. Water-Milfoil.

Lapham. Blue Earth county, *Leiberg*. [In Manitoba, *Macoun*.] Infrequent.

M. heterophyllum, Michx. Wa'er-Milfoil.

Lapham. Common southwestward, *Upham*.

[*Proserpinaca palustris*, L., has not yet been observed, but it probably occurs in this state.]

HIPPURIS, L. MARE'S-TAIL.**H. vulgaris, L.** Mare's-Tail.

Frequent, often common, through the north half of the state; extending south at least to Little Falls (plentiful), *Upham*, Stearns county (abundant), *Mrs. Blaisdell*, and the Minnesota river near Traverse des Sioux, *Parry*.

ONAGRACEÆ. EVENING-PRIMROSE FAMILY.

CIRCAEA, Tourn. ENCHANTER'S-NIGHTSHADE.**C. Lutetiana**, L. Tall Enchanter's-Nightshade.

Common throughout the state.

C. alpina, L. Low Enchanter's-Nightshade.Common through the north half of the state; extending south at least to Anoka county, *Juni*, Minneapolis, *Herrick*, and Lake City, *Mrs. Ray*.**GAURA**, L. GAURA.**G. biennis**, L. Gaura.Lake Pepin, *Miss Manning*. Southeast.**G. coccinea**, Nutt.* Gaura.Herman, Grant county, *Upham, Roberts*; ridge east of the Red river, near the international boundary (infrequent), *Scott*; plains of the Red river, *Drummond, Douglas*. West.**EPILOBIUM**, L. WILLOW-HERB.**E. spicatum**, Lam. (E. angustifolium, L.) Great Willow-herb. Fire-weed.Common, or frequent, through the forest portion of the state; conspicuous on tracts of burned woodland. A canescent variety, besides the type, occurs at the lake of the Woods, *Dawson*.**E. origanifolium**, Lam. (E. alpinum, L., var. *majus*, Wahl.) Willow-herb.Winona county, *Holzinger*; Minneapolis, *Kassabe*; Minneopa Falls, Blue Earth county, *Leiberg*. Rare southward, but probably frequent northward.**E. palustre**, L., var. **lineare**, Gray. Linear-leaved Epilobium.

Common, or frequent, through the north half of the state, and southwestward; rare southeastward.

E. molle, Torr. Downy Willow-herb.Blue Earth county, *Leiberg*; Minneapolis, *Simmons*; Anoka county, *Juni*. Infrequent.**E. coloratum**, Muhl. Willow-herb.

Common throughout the state, especially northward.

ENOTHERA, L. EVENING-PRIMROSE.**E. biennis**, L. Common Evening-Primrose.

Common throughout the state.

E. biennis, L., var. **grandiflora**, Lindl.At the northwest side of Millie Laes, *Upham*. [The var. *muricata*, Lindl., also quite certainly occurs in this state.]

***GAURA COCCINEA**, Nutt. Canescent, puberulent or glabrate; stems suffructicose and fastigiate branched from the base, 6 to 12 inches high, very leafy, ascending; leaves lanceolate, linear-oblong or linear, repand-denticulate or entire, 6 to 12 lines long, closely sessile; flowers in simple spikes terminating the leafy branches, rose-color, turning to scarlet; bracts linear, rather persistent, longer than the ovaries; calyx-segments linear-oblong, shorter than the narrow infundibuliform tube, as long as the roundish, unguiculate petals; fruit elliptical, sessile, short, terete, 4-sided above. *Porter and Coulter's Flora of Colorado*.

OE. rhombipetala, Nutt. Evening-Primrose.

Frequent through the south part of the state; extending north to Minneapolis, *Roberts*, *Anoka* county, *Juni*, and *Stearns* county, *Garrison*; but not found in the Red river valley, *Upham*.

OE. fruticosa, L. Sundrops.

Upper Mississippi river, *Garrison*. Rare. South.

OE. pumila, L. (Including *OE. chrysanthia*, Michx.) Small Evening-Primrose.

Throughout the state, but infrequent. Lake of the Woods *Dawson*, *Burgess*; upper Mississippi river, *Garrison*; *Goodhue* county, *Sandberg*; Lake city, *Mrs. Ray*; *Hesper*, *Iowa*, *Mrs. Carter*; Pipestone county, *Mrs. Bennett*.

OE. serrulata, Nutt. Evening-Primrose.

Common in all the prairie portion of the state; abundant in the Red river valley; extending northeast to the upper Mississippi, *Houghton*.

OE. albicaulis, Nutt.* White, shrubby Evening-Primrose.

Brown's Valley (petals white, 1 inch long), *Upham*; near *Muskoda*, *Clay* county, *Leiberg*; *Pembina*, *Havard*. West.

LUDWIGIA, L. FALSE LOOSESTRIFE.**L. polycarpa**, Short & Peter. False Loosestrife.

Lake *Pepin*, *Miss Manning*; White Bear lake, *Ramsey* county, *Simmons*. Rare. Southeast.

L. palustris, Ell. Water Purslane.

St. Croix river, *Parry*; Blue Earth county, *Leiberg*. [Saskatchewan river, *Richardson*.] Infrequent.

LYTHRACEÆ. LOOSESTRIFE FAMILY.

DIDIPLIS, Raf. Didiplis.**D. linearis**, Raf. (Ammannia Nuttallii, Gray.) Didiplis.

Minnesota, *T. J. Hale*, in *Gray's Manual*. Southeast.

LYTHRUM, L. LOOSESTRIFE.**L. alatum**, Pursh. Loosestrife.

Common, or frequent, through the southern third of the state; extending north to *Stearns* county, *Mrs. Blaisdell*, and the upper Mississippi river, *Garrison*.

[*Nesaea verticillata*, HBK, which occurs on the upper St. Croix river in Wisconsin, should be looked for in the adjoining part of Minnesota.]

**ENOTHERA ALBICAULIS*, Nutt. Perennial, puberulent or hirsute; stems usually 1 to 3 feet high, erect or ascending, with a white, membranous, shining bark; leaves very variable, linear or lanceolate, attenuate at the base, entire or more or less dentate; petals round-ovate, more or less unguiculate, entire, exceeding the stamens and equaling the pistil, often nearly white; capsule thickened at base, sessile, linear, divaricate, often flexuous or deflexed; seeds rather small, linear-lanceolate, smooth. *Porter and Coulter's Flora of Colorado*.

CACTACEÆ. CACTUS FAMILY.

OPUNTIA, Tourn. PRICKLY PEAR. INDIAN FIG. "CACTUS."**O. Rafinesquii**, Engelm. Prickly Pear.

On rocks : at Taylor's Falls, *Miss Field*, *Miss Cathcart*; in section 17, Haven, Sherburne county, *Upham*; Redstone, near New Ulm, *Juni*. Rare. South. (The "prickly pear" which Keating and Sir John Richardson mention as abundant on the islands of the lake of the Woods is probably *Echinocystis lobata*. *Macoun*.)

O. Missouriensis, DC. Prickly Pear.

Section 17, Omro, Yellow Medicine county, *Upham*; Pipestone county (plentiful at the pipestone quarry), *Mrs. Bennett*, determined by *Dr. Engelmann*. Rare. South.

O. fragilis, Haw.* Prickly Pear.

Plentiful at the pipestone quarry, Pipestone county ("joints small, terete, with a terminal habit of growth, making them somewhat like a string of beads"), *Mrs. Bennett*, determined by *Dr. Engelmann*; Redwood Falls, *Miss Butler*. Rare. Southwest. (The range of this species is principally westward, on the upper Missouri and Yellowstone and thence south; but it occurs very rarely and locally farther east, being reported by *Swezey*, at Baraboo, Wisconsin.)

CUCURBITACEÆ. GOURD FAMILY.

SICYOS, L. ONE-SEEDED STAR-CUCUMBER.**S. angulatus**, L. One-seeded Star-Cucumber.

Frequent through the south part of the state; extending north to St. Croix Falls, *Miss Field*, and Stearns county, *Garrison*.

ECHINOCYSTIS, Torr. & Gray. WILD BALSAM-APPLE.**E. lobata**, Torr. & Gray. Wild Balsam-apple.

Common, or frequent, through the south half of the state, and in the Red river valley; extending northeast to Mille Laes, *Upham*, the upper Mississippi river, *Garrison*, the lake of the Woods, *Dawson*, and Fort Francis, Rainy river, *Macoun*.

UMBELLIFERÆ. PARSLEY FAMILY.

HYDROCOTYLE, Tourn. WATER PENNYWORT.**H. Americana**, L. Water Pennywort.

Lapham. Falls of the St. Croix, *Parry*. East.

H. umbellata, L. Water Pennywort.

North shore of lake Superior, *Juni*. Rare. East. [This species also occurs in Michigan.]

***OPUNTIA FRAGILIS**, Haw. The joints are small, ovate, compressed or turned, or even terete; 4 larger spines on the upper fully developed pulvilli cruciate, the upper one suberect, stouter and longer than the others, mostly yellowish-brown; on the lower margin 4-6 small white radiating spines; bristles few. Fruit apparently somewhat fleshy, getting dry much later with 20 to 28 pulvilli, almost naked, only the upper ones with a few short spines; seeds few, large, regular. *Engelmann* and *Bigelow*, in *Pacific Railroad Report*.

SANICULA, Tourn. SANICLE. BLACK SNAKEROOT.**S. Canadensis**, L. Sanicle. Black Snakeroot.Common, or frequent, through the south part of the state ; extending north at least to Pine and Sherburne counties (common,) *Upham*, and Stearns county, *Campbell*.**S. Marylandica**, L. Sanicle. Black Snakeroot.

Common, or frequent, throughout the state.

ERYNGIUM, Tourn. Eryngo.**E. yuccaeifolium**, Michx. Rattlesnake-Master. Button Snakeroot.Common southeastward ; extending north to Rice and Nicollet counties, and west to Martin county and the southeast part of Brown county, *Upham*.**DAUCUS**, Tourn. CARROT.**D. Carota**, L. Common Carrot.Occasionally spontaneous : Nicollet county, *Aiton*; Lake City, *Miss Manning*.**CARUM**, L. Caraway.**C. Carui**, L.* Common Caraway."Self-seeding" northeastward, *Clark*; not infrequently adventive, Todd, Isanti and Steele counties, *Upham*.**POLYTÆNIA**, DC. POLYTÆNIA.**P. Nuttallii**, DC. Polytænia.*Lapham*. Rare. South.**HERACLEUM**, L. COW-PARSNIP.**H. lanatum**, Michx. Cow-Parsnip.

Frequent throughout the state; abundant north of lake Superior.

PEUCEDANUM, L. PEUCEDANUM. HOG'S-FENNEL.**P. nudicaule**, Nutt.† Peucedanum. Hog's-Fennel.Rock county, *Leiberg*; extending northeast to Saint Cloud, Stearns county (bluff of Mississippi river, near the Normal School) *Mrs. Blaisdell*, determined by Prof. Asa Gray. "Abundant on gravelly drift knolls in southwestern Minnesota and northwestern Iowa; remarkable for being the earliest flowering plant of that region, blooming almost as soon as the snow has disappeared." *Leiberg*. Southwest.

**Carum Carui*, L. Finely pinnately compound leaves ; stem-leaves with slender but short thread-shaped divisions ; white flowers; oblong, highly aromatic fruit. *Gray's Field, Forest, and Garden Botany*.

†*PEUCEDANUM NUDICAULE*, Nutt. Caulescent or sometimes scarcely so, minutely pruinose-pubescent, 3 to 15 inches high ; leafy only at base ; leaves bipinnate or ternate-bipinnate, the segments incisely lobed with usually rather broad and subacute divisions ; umbel somewhat capitate in flower, with 8 to 12 rays ; involure none ; involucels unilateral, of 6 to 10 membranously margined, more or less united bracts ; petals white, with attenuated apex and quasi-obcordate ; calyx-teeth short ; fruit pubescent, broadly oval, 3 to 4 lines long and 3 lines broad, the thickish wing more than half as wide as the seed ; vittæ 3 in the intervals, 6 upon the commissure, conspicuous ; seed flattened. As observed by Dr. Gray, the plant does not accord with Nuttall's description, nor in all-respects with the characters of the genus ; the lateral wings, however, are contiguous until the full maturity of the seed. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

PASTINACA, Tourn. PARSNIP.

P. sativa, L. (*Peucedanum sativum*, Benth. & Hook.) Common Parsnip.
Occasionally adventive throughout the state. [Common in Manitoba, Macoun.]

ARCHEMORA, DC. COWBANE.

A. rigida, DC. Cowbane. Water Dropwort.

Upper Mississippi river, Garrison; Wabasha, Gibson; Hesper, Iowa, Mrs. Carter. (The var. *ambigua*, Torr. & Gray, probably also occurs in Minnesota. Arthur.) Infrequent. South.

CYMOPTERUS, Raf. Cymopterus.

C. glomeratus, Raf.* Cymopterus.

"Bend of Red river" [at Breckenridge], Lapham (according to his ticket of specimens in the herbarium of Harvard college, Watson). West.

ARCHANGELICA, Hoffm. ARCHANGELICA.

A. hirsuta, Torr. & Gray. Archangelica.

Anoka county, Junt; lake Pepin, Miss Manning. Rare. South.

A. atropurpurea, Hoffm. Great Angelica.

Common, or frequent, through the north half of the state, excepting perhaps far northwestward; found in Clay county in the Red river valley, Gedge; extending south to lake Pepin, Miss Manning, Cannon River Falls, Blake, Sandberg, and New Ulm, Juni.

SELINUM, L. HEMLOCK-PARSLEY.

S. Canadense, Michx. (*Conioselinum Canadense*, Torr. & Gray.) Hemlock-Parsley.

Upper Mississippi river, Garrison. Rare.

ÆTHUSA, L. FOOL'S PARSLEY.

Æ. Cynapium, L. Fool's Parsley.

Near Lake City, Miss Manning; Nicollet county, Aiton. Rare. South.

—
**CYMOPTERUS*, Raf. Calyx-teeth rather prominent and setaceous or lanceolate, minute or obsolete. Petals ovate, oblong or oblanceolate, inflexed, quasi-emarginate. Disk flattened around the styles, undulate-margined. Fruit ovate or elliptical, obtuse or retuse, subterete or slightly compressed dorsally; carpels semi-terete; ribs thick and elevated, all or only the lateral ones or those opposite to the calyx-teeth expanded into wings; vittæ numerous, narrow. Carpophore 2-parted, free or attached to the carpels. Seeds much compressed dorsally and more or less concave on the face.—Perennial and subcaespitose, with a thickened caudex; leaves pinnately decompound, with narrow, small or incisely pinnatifid segments; umbels compound, usually few-rayed; involucular bracts 1 to 2 or none; of the involucels several, very narrow or broad and membranous; flowers white or yellow: Benth. & Hook.

CYMOPTERUS GLOMERATUS, Raf. Root thick and fusiform; plant 3 to 8 inches high; caudex about 1 inch high, sometimes divided, bearing the leaves and peduncles at the summit; leaves on long petioles ternately divided and bipinnatifid, segments oblong-linear; rays of the umbel 4 to 6, very short; peduncles much shorter than leaves, 6 to 12 lines long; flowers white, those of the center abortive, pedicellate; leaflets of the palmately 5- to 7- parted involucel coherent at base and partly adnate to the rays of the umbelllets; calyx-teeth subulate; fruit elliptical, 4 lines long, wings thickened and somewhat spongy, more or less obsolete; vittæ in each interval 3 or 4, in the commissure about 8. Porter and Coulter's Flora of Colorado.

THASPIUM, Nutt. MEADOW-PARSNIP.**T. barbinode**, Nutt. Meadow-Parsnip.

Blue Earth river, *Parry*; Minneapolis, *Roberts*, *Upham*; extending north to the upper Mississippi river, *Garrison*. South.

T. aureum, Nutt. Meadow-Parsnip.

Common through the south half of the state; extending north to the upper Mississippi river, *Garrison*, and Sand Hill river, *Upham*; *Pembina*, *Chickering*, *Havard*.

T. aureum, Nutt., var. **apterum**, Gray. Meadow-Parsnip.

Minnesota river, *Parry*; abundant in Martin county, and in Emmet county, Iowa, *Cratty*. Perhaps the more common form of the species. South.

T. trifoliatum, Gray. Meadow-Parsnip.

Common through the south half of the state and northwestward; extending northeast to the upper Mississippi river, *Garrison*.

T. trifoliatum, Gray, var. **apterum**, Gray. Meadow-Parsnip.

Common throughout the Red river valley (the prevailing representative of this genus north of Sand Hill river), *Upham*; and common in Emmet county, Iowa, *Cratty*. Probably the most frequent form of the species in this state. (The var. *atropurpureum*, Gray, doubtless also occurs here, but must be rare.)

PIMPINELLA, L. BURNET SAXIFRAGE. GOLDEN ALEXANDERS.**P. integrifolia**, Benth. & Hook. (*Zizia integrifolia*, DC.) Golden Alexander.

Winona county, *Holzinger*; lake Pepin, *Miss Manning*; Faribault, *Miss Beane*; Martin county (plentiful), *Cratty*; Red river valley near Moorhead, *Leiberg*. Local.

CICUTA, L. WATER-HEMLOCK.**C. maculata**, L. Spotted Cowbane. Musquash Root. Beaver-Poison.

Common, or frequent, throughout the state; abundant in the Red river valley. The roots of this and the following species are deadly poison.

C. virosa, L.* Water-Hemlock. Musquash-Poison.

Pembina, Red river valley ("this species exhibits forms running toward *C. maculata*,") *Chickering*; frequent from the Red river westward, on wet spots on the prairie, *Macoun*. Northwest.

C. bulbifera, L. Bulb-bearing Water-Hemlock.

Throughout the state; common northward, infrequent southward.

**CICUTA VIROSA*, L. Root-fibres slender. Rootstock short, hollow, with transverse partitions. Radical leaves bininate; ultimate leaflets or segments strap-shaped-elliptical, entire or cleft, coarsely and unequally serrate. Stem erect, branched, hollow, 1 to 4 feet high. Lower leaves very large, triangular or lanceolate in outline, on thick, hollow petioles, with the pinnae again pinnate; the secondary pinnae undivided or 2- or 3-cleft or partite or pinnatifid, 1 to 3 inches long, varying in breadth from $\frac{1}{2}$ to $\frac{3}{4}$ inch; stem-leaves much smaller and less compound. Umbels flat-topped, lax, stalked, terminal or (from the growth of an axillary branch) opposite the leaves; rays of the umbels 1 to 2 inches long; pedicels $\frac{1}{4}$ to $\frac{3}{8}$ inch long. Involucre none; involucel of numerous linear tapering leaves, shorter than the flowers. Flowers $\frac{1}{2}$ inch across, white. Calyx-teeth ovate, much shorter than the petals, persistent. Petals roundish-ovate, spreading, slightly notched, with a small inflexed lobe. Cremocarp with the breadth greater than the length, which is one-tenth inch, reddish-brown, with the vittae apparent when dry; ridges broad, little elevated; styles long, reflexed. *Sowerby's English Botany*, vol. iv.

SIUM, L. WATER-PARSNIP.

S. cicutaeifolium, Gmelin. (*S. lineare*, Michx.) Water-Parsnip.
Common, or frequent, throughout the state.

BERULA, Koch. WATER-PARSNIP.

B. angustifolia, Koch. (*Sium angustifolium*, L.) Water-Parsnip.
Cold springs, Mankato and Kasota, *Leiberg*. Infrequent. South.

CRYPTOTÆNIA, DC. HONEWORT.

C. Canadensis, DC. Honewort.

Common through the south part of the state, extending north to the upper Mississippi river; Fond du Lac, at west end of lake Superior, *Mrs. Herrick*.

OSMORRHIZA, Raf. Sweet Cicely.

O. longistylis, DC. Smoother Sweet Cicely.
Common throughout the state.

O. brevistylis, DC. Hairy Sweet Cicely.
Frequent throughout the state.

CONIUM, L. POISON HEMLOCK.

C. maculatum, L. *Poison Hemlock*.
Red river valley near Saint Vincent, *Scott*. Infrequent.

ARALIACEÆ. GINSENG FAMILY.

ARALIA, Tourn. GINSENG. WILD SARSAPARILLA.

A. racemosa, L. Spikenard.
Frequent throughout most of the state; common in Todd, Stearns and Brown counties; rare far northward.

A. hispida, Vent. Bristly Sarsaparilla. Wild Elder.
Common along the north shore of lake Superior, *Roberts, Juni*; extending south to the Falls of the St. Croix, *Parry*, and to Dakota county (frequent), *Upham*. Northeast.

A. nudicaulis, L. Wild Sarsaparilla.
Common throughout the state.

A. quinquefolia, Decaisne & Planch. Ginseng.

Throughout the state, excepting perhaps northwestward; local, wanting in some districts, rare far northward; frequent, occasionally abundant, in the region of the upper Mississippi, and in Mille Lacs, Pine, Anoka, Hennepin and Brown counties. Large quantities of the aromatic, medicinal root of this plant, mostly dug by the Chippewa Indians, are bought every year in the north part of the state, the price being about a dollar per pound. It is mostly exported to China; and the annual exportation of this article from the United States, mainly from Pennsylvania, West Virginia, Ohio, Michigan, Wisconsin and Minnesota, amounts to about \$700,000. *U. S. Agricultural Report for 1877*, p. 545.

A. trifolia, Decaisne & Planch. Dwarf Ginseng. Ground-nut.
East part of the state, extending north to Pine county, *Clark*; lake Pepin, *Miss Manning*; Nicollet county, *Leiberg*.

CORNACEÆ. DOGWOOD FAMILY.

CORNUS, Tourn. CORNEL. DOGWOOD.**C. Canadensis**, L. Dwarf Cornel. Bunch-berry.

Abundant through the north part of the state; extending south to Fergus Falls, Leonard, Wadena county, Upham, Minneapolis, Winchell, Roberts, and Saint Paul (rare), Miss Cathcart; rare and local farther southeast, as in Wabasha county, Holzinger, Miss Manning.

C. circinata, L'Her. Round-leaved Dogwood.

Frequent, occasionally common, throughout the state.

C. sericea, L. Silky Cornel. Kinnikinnick.

Frequent throughout the state, excepting far northward. The inner bark of this and the next following species, the leaves of the bearberry (*Arctostaphylos Uva-ursi*), and leaves of sumach, gathered when they turn red, are each used by the Indians, under the name *Kinnikinnick*, to mix with their tobacco for smoking. Parry states that the bark of this species, wherever it is found, is preferred for this purpose; and that the bark of the next is commonly substituted for it by the Indians about lake Superior.

C. stolonifera, Michx. Red-osier Dogwood. Kinnikinnick.

Abundant through the north half of the state, and common southward to Winona and Mower counties, Winchell, and Blue Earth county, Upham; but scarcely reaching into Iowa (in Emmet county, rare, Cratty). The name of the Redwood river, which is a translation of its original Indian name, is said by Prof. A. W. Williamson to be probably derived from this or the preceding species of Kinnikinnick.

C. asperifolia, Michx. Rough-leaved Dogwood.

Blue Earth river, Parry, Leiberg; Cannon River Falls, Blake, Sandberg; Hesper, Iowa (common), Mrs. Carter. South,

C. paniculata, L'Her. Paniced Cornel.

Common through the south half of the state, and in the Red river valley; the most plentiful species of cornel in the Big Woods; extending north to Todd and Wadena counties (common), Upham, but not reported in the region of the upper Mississippi river and northeastward.

C. alternifolia, L. Alternate-leaved Cornel.

Frequent, occasionally common, throughout the state, excepting far northward, where it is rare (at Poplar river, north of lake Superior, June).

CAPRIFOLIACEÆ.* HONEYSUCKLE FAMILY.

LINNÆA, Gronov. LINNÆA. TWIN-FLOWER.**L. borealis**, Gronov. Linnaea. Twin-flower.

Abundant north of lake Superior and thence to the sources of the Mississippi and northward; St. Louis river (usually having five perfect stamens), Mrs. Herrick; extending southwest to Wadena and Todd counties, Upham, and south to Minneapolis (at lake Calhoun), Roberts. In the northeast part of the state, "this pretty little plant, the

* Advance sheets of a new part of Professor Gray's *Synoptical Flora of North America* (Vol. I, Part II; Caprifoliaceæ to Compositæ, inclusive), kindly sent by him while this catalogue was in process of being printed, have supplied very important corrections, especially in synonymy, as well as numerous additions, and valuable aid in the statements of geographic range.

Dwarf Cornel and the Clintonia are the most common small flowering plants found in the moss-carpeted forest." *Roberts.*

SYMPHORICARPOS, Dill. **SNOWBERRY.**

S. occidentalis, Hook. **Wolfberry.**

Common, often abundant, through the south half of the state; and northwesterly from Wadena county to the Red river valley, *Upham*, and the lake of the Woods, *Dawson*; infrequent northeastward. [North of lake Superior, *Agassiz*.]

S. racemosus, Michx. **Snowberry.**

Lake Pepin, *Miss Manning*; sources of the Mississippi, *Houghton, Garrison*; Red river valley, *Scott*. North.

S. racemosus, Michx., var. **pauciflorus**, Robbins. **Snowberry.**

Lake Pepin, *Miss Manning*; Minneapolis, *Winchell*; Stillwater, *Miss Field*; Redwood Falls, *Pemberton*; Isanti, Crow Wing and Wadena counties, *Upham*. North.

S. vulgaris, Michx. **Indian Currant. Coral-berry.**

Lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*; Hennepin county, *Herick*; upper Mississippi river, *Garrison*. Rare. South.

LONICERA, L. **HONEYSUCKLE. WOODBINE.**

[*L. grata*, Ait., has been several times reported in this state; but Gray's *Synoptical Flora of N. A.* shows that these references doubtless belong to some other species.]

L. Sullivantii, Gray. (*L. flava*, in part, Gray's *Manual*.) **Yellow Honeysuckle.**

Winona county, *Holzinger*; Lake City, *Miss Manning*; Cannon River Falls, *Blake, Sandberg*; Hennepin county, *Winchell*; Fergus Falls, *Leonard*.

L. glauca, Hill. (*L. parviflora*, Lam., and var. *Douglasii*, Gray, in *Manual*.) **Yellow Honeysuckle. Crimson Honeysuckle.**

Common, or frequent, throughout the state. This species with "crimson or deep dull purple" flowers has been noted by many observers in all parts of the state as a distinct variety, but Gray's *Synoptical Flora of N. A.* does not separate it from the type with greenish yellow flowers.

L. hirsuta, Eaton. **Hairy Honeysuckle.**

Lake Superior to the source of the Mississippi, *Houghton*; common north of lake Superior, *Juni*; Carlton county, *Roberts*; Pembina, *Chickering, Havard*. North.

L. involucrata, Banks. **Involucrate Honeysuckle.**

Isle Royale, lake Superior; doubtless also in northern Minnesota.

L. ciliata, Muhl. **Fly-Honeysuckle.**

North of lake Superior, *Juni*; Hennepin county, *Winchell*; frequent at Hesper, Iowa, *Mrs. Carter*.

L. cærulea, L. **Mountain Fly Honeysuckle.**

North shore of lake Superior (swamp near Port Arthur), *Macoun*; doubtless in northeastern Minnesota.

L. oblongifolia, Hook. **Swamp Fly-Honeysuckle.**

Kanabec county, *Upham*. North.

DIERVILLA, Tourn. **BUSH-HONEYSUCKLE.**

D. trifida, Mœnch. **Bush-Honeysuckle.**

Throughout the state; common, often abundant, northward, and frequent southward.

TRIOSTEUM, L. Fever-wort. Horse-Gentian.**T. perfoliatum, L.** Fever-wort. Horse-Gentian.

Frequent through the south part of the state; extending north to Stearns and Todd counties, *Upham*.

ADOXA, L. MOSCHATEL.**A. Moschata**LLINA, L.* Moschatel. Hollow-root. Musk Crowfoot.

Beside Rolling Stone creek, three miles west of Minnesota City, Winona county, *Holzinger*; Vasa, Goodhue county, *Sandberg*. Rare. (Also found at Decorah, Iowa, and on the Rocky mountains in Colorado; common far north in British America.)

SAMBUCUS, Tourn. ELDER.**S. Canadensis, L.** Common Elder. Sweet Elder.

Common, or frequent, through the south half of the state, and rare northwesterly to Otter Tail and Becker counties.

S. racemosa, L. (S. pubens, Michx.) Red-berried Elder.

Common, or frequent, throughout the state.

VIBURNUM, L. ARROW-WOOD. LAURESTINUS.**V. Lentago, L.** Sweet Viburnum. Sheep-berry. Black Haw.

Common through the south half of the state; extending north at least to Cass county (Fish-hook lake) and the White Earth reservation, *Garrison*, and to Pembina, *Chickering, Scott, Havard*.

V. cassinoides, L. (V. nudum, L., var. cassinoides, Torr. & Gray.)

Wither-rod.

Upper Mississippi river and White Earth reservation, *Garrison*.

V. dentatum, L. Arrow-wood.

White Earth reservation, *Garrison*; Fergus Falls, *Leonard*; Minnesota river, *Parry*; Pipestone county, *Mrs. Bennett*; New Ulm (common), *Juni*; Minneapolis, *Griswold, Kassabe*; lake Pepin, *Miss Manning*.

V. pubescens, Pursh. Downy Arrow-wood.

Common, or frequent, throughout the state.

V. acerifolium, L. Maple-leaved Arrow-wood. Dockmackie.

White Earth reservation, *Garrison*; Lake City, *Mrs. Ray*. Infrequent. Southeast.

[V. pauciflorum, *Pylaie*, will doubtless be found in northern Minnesota; and perhaps also V. lantanoides, Michx.]

V. Opulus, L. Cranberry-tree. Bush or High Cranberry.

Common through the north half of the state and in the Big Woods; frequent thence southeastward; absent far southwest. Fruit much used for sauce. The name Pembina,

*ADOXA, L. A genus of but a single species, widely distributed throughout the cooler parts of the globe. Flowers perfect. Tube of the calyx coherent with the lower part of the ovary, the limb slightly 2-3 cleft. Petals 4-5, inserted on the limb of the calyx, united at the base, spreading. Stamens 4-5, each filament 2-parted; the divisions bearing each a single-celled peltate anther. Styles 4-5, subulate. Fruit an herbaceous and juicy berry, 4-5-celled; each cell with a single suspended seed. Seeds compressed, with a membranaceous margin.

A. MOSCHATELLINA, L. A small perennial herb, with the odor of musk; root tuberous; radical leaves twice ternately compound, on long petioles, the caudine solitary, 1-2 ternate or incised; flowers 4-6 (greenish) in a terminal capitulum, the lateral ones mostly pentamerous, the terminal tetramerous. *Torrey and Gray's Flora of N. A.*, as quoted by *Arthur*.

borne first by a river, and thence given to a town and county, is stated by Keating to be from the Chippewa word for this fruit, "anepeiminan, which name has been shortened and corrupted into Pembina (Viburnum Oxycoccus)." *Narrative of Long's Expedition*, vol. ii, p. 38; see also p. 127.

RUBIACEÆ. MADDER FAMILY.

GALIUM, L. BEDSTRAW. CLEAVERS.

G. Aparine, L. Cleavers. Goose-Grass.

Stearns county, *Mrs. Blaisdell*; Minneapolis, *Roberts*; Faribault, *Miss Beane*; Goodhue county, *Sandberg*; common at Hesper, Iowa, *Mrs. Carter*; frequent in Emmet county, Iowa, *Cratty*.

G. asprellum, Michx. Rough Bedstraw.

Common, or frequent, throughout the state.

G. concinnum, Torr. & Gray. Bedstraw.

Minneapolis, *Roberts*; Blue Earth county, *Leiberg*; Martin county (abundant), *Cratty*; Fergus Falls, *Leonard*. South.

G. trifidum, L. (*G. tinctorium*, L.) Small Bedstraw. Dyer's Cleavers.

Common, or frequent, throughout the state; exhibiting within our limits, the three varieties mentioned by Gray's *Manual*.

G. trifidum, L., var. **pusillum**, Gray. Small Bedstraw. Dyer's Cleavers. Pembina, *Havard*. North.

G. trifidum, L., var. **latifolium**, Torr. Dyer's Cleavers.

Minneapolis, *Roberts*.

G. triflorum, Michx. Sweet-scented Bedstraw.

Throughout the state; common northward, frequent southward.

G. circæzans, Michx. Wild Licorice.

Lapham. Rare. Southeast.

G. lanceolatum, Torr. Wild Licorice.

Goodhue county, *Sandberg*. Rare. East.

G. boreale, L. Northern Bedstraw.

Abundant, or common, throughout the state.

CEPHALANTHUS, L. BUTTON-BUSH.

C. occidentalis, L. Button-bush.

Lapham. Taylor's Falls, *Roberts*; shore of lake Pepin in Wisconsin, *Miss Manning*. South.

MITCHELLA, L. PARTRIDGE-BERRY.

M. repens, L. Partridge-berry.

St. Croix river, *Parry*, *Miss Field*; upper Mississippi river, *Garrison*; northern Kansbec county (common), *Upham*; abundant at Taylor's Falls and Duluth, *Miss Cathcart*.

HOUSTONIA, Gronov. HOUSTONIA.

H. purpurea, L., var. **longifolia**, Gray. Houstonia.

Frequent throughout most of the state. Gooseberry river, lake Superior, *Juni*; St. Louis river, *Houghton*; lake of the Woods, *Dawson*; and thence south at least to

Chisago county (plentiful), *Upham*, lake Pepin, *Miss Manning*, Blue Earth county, *Leiberg*, and the Upper Minnesota river, *Parry*.

H. purpurea, L., var. *ciliolata*, Gray. Houstonia.
Stearns county, *Campbell*. [Walhalla, northeastern Dakota, *Scott*.]

VALERIANACEÆ. VALERIAN FAMILY.

VALERIANA, Tourn. VALERIAN.

V. edulis, Nutt. Valerian.

Upper Mississippi river, *Parry*; Minneapolis, *Roberts*; lake Pepin, *Miss Manning*; Faribault, *Miss Beane*; Winona county, *Holzinger*; Fillmore county, *Mrs. Carter*; Steele county (frequent), *Upham*.

[*V. sylvatica*, Banks, probably also occurs northward.]

VALERIANELLA, Tourn. (FEDIA, Gærtn.) CORN SALAD. LAMB LETTUCE.

V. chenopodifolia, DC. (F. *Fagopyrum*, *Toir.* & *Gray*.) Corn Salad.
Lamb Lettuce.

Lake Pepin, *Miss Manning*; eastern Rice county (common), *Upham*. Southeast.

V. radiata, Dufresne. (F. *radiata*, Michx.) Corn Salad. Lamb Lettuce.
Lapham. Cannon River Falls, *Blake*, *Sandberg*. Rare, Southeast.

DIPSACEÆ. TEASEL FAMILY.

DIPSACUS, Tourn. Teasel.

D. sylvestris, Mill. Wild Teasel.
Lake Pepin, *Miss Manning*. Infrequent.

COMPOSITÆ. COMPOSITE FAMILY.

VERNONIA, Schreb. IRON-WEED.

V. Noveboracensis, Willd. Iron-weed.
Upper Mississippi river, *Houghton*; Hennepin county, *Herrick*; St. Paul, *Kelley*; Blue Earth county, *Leiberg*. Southeast.

V. fasciculata, Michx. Iron-weed.
Common through the south half of the state and in the Red river valley, *Upham*.

LIATRIS, Schreb. BUTTON SNAKEROOT. BLAZING-STAR. GAY FEATHER.

L. squarrosa, Willd. Blazing-Star.

Common through the south part of the state; extending north to the upper Mississippi river, *Garrison*.

[*L. squarrosa*, Willd., var. *intermedia*, DC. (heads narrow; bracts of the involucre erect or little spreading, less prolonged), probably also occurs in this state, according to Gray's *Synoptical Flora of N. A.*.]

L. cylindracea, Michx. Button Snakeroot. Blazing-Star.

Common, or frequent, through the south half of the state; extending north to the upper Mississippi river, *Houghton*, *Garrison*, and *Fergus Falls*, *Leonard*.

L. scariosa, Willd. Blazing-Star. Gay Feather.

Common, often abundant, through the south half of the state, being the most plentiful species southwestward; also common in the Red river valley, especially north of Sand Hill river and along the old Pembina trail, *Upham*; extending northeast to the upper Mississippi river, *Houghton*. (A remarkable form of this species, bearing the heads at the end of leafy, ascending branches, 2 to 6 inches long, was found in a bog near Mankato by *Mr. Leiberg*. White-flowered specimens have been collected by *Mr. W. H. Kelley*, at Dellwood, White Bear lake, Ramsey county.)

L. spicata, Willd. Blazing-Star.

Lake Pepin, *Miss Manning*; Minneapolis, *Kassube*; Anoka county, also New Ulm, *Juni*; Blue Earth county, *Leiberg*, *Gedge*; Kandiyohi county, *Upham*; Fergus Falls, *Leonard*. Less frequent than the last and the next. South.

L. pyenostachya, Michx. Blazing-Star.

Common through the south half of the state; very abundant in the Red river valley in Clay and Norman counties, but rare or infrequent north of Sand Hill river, *Upham*. This species is three weeks earlier in flowering than *L. scariosa*, and prefers moister ground.

L. punctata, Hook.* Blazing-Star.

Generally common on the drier portions of the prairie, in the west part of the state, extending east to Martin county, *Cratty*, Saint Peter, *Gedge*, and the St. Croix river, *Swetzy*; but infrequent north of the Sand Hill river; seen in Kittson county only at the Ridge, twelve miles east of Saint Vincent, *Upham*, *Dawson*; also found at Pembina, *Havard*.

KUHNIA, L. KUHNIA.**K. eupatorioides**, L. Kuhnnia.

Frequent, or common, through the south part of the state; Goodhue county, *Sandberg*; Hennepin county, *Herrick*; Blue Earth county, *Leiberg*; common southwestward (leaves broadly lanceolate, deeply toothed), *Upham*; extending northwest to Devil's lake, Dakota, *Geyer*.

K. eupatorioides, L., var. **corymbulosa**, Torr. & Gray.† Kuhnnia.

Prairies and plains, Illinois to Dakota and Nebraska, and south to Alabama and Texas, *Gray's Synoptical Flora of N. A.*; therefore doubtless in southern and western Minnesota.

* **LIATRIS PUNCTATA**, Hook. Stems 8 inches to 3 feet high, from a thick, knotted, fusiform root, glabrate, leafy to the top; leaves linear, rigid, strongly punctate on both sides, glabrous or their margins somewhat ciliate, lower ones 3 to 5 inches long, slightly 3-nerved, 1 to 3 lines wide, pungently acute; heads in a dense spike, 4 to 10 inches long, 4- to 6-flowered; flowers reddish-purple; scales of the cylindraceous involucre oblong, strongly punctate, imbricated, appressed, with mucronate, acuminate, rather spreading tips, margins woolly-ciliate; bristles of the pappus about 30, purplish or white, very plumose; achenia hairy. *Porter and Coulter's Flora of Colorado*.

†**KUHNIA EUPATORIOIDES**, L., var. **CORYMBULOSA**, Torr. & Gray. A foot or two high, stouter, somewhat cinereous-pubescent or tomentulose: leaves rather rigid and sessile, from oblong to lanceolate, coarsely veiny: heads rather crowded. *Gray's Synoptical Flora of N. A.*

EUPATORIUM, Tourn. THOROUGHWORT. BONESET.**E. purpureum**, L. Joe-Pye Weed. Trumpet-weed.

Common throughout the state.

E. purpureum, L., var. **maculatum**, Darl.* Joe-Pye Weed. Trumpet-weed.

Frequent, or common, throughout the state.

E. altissimum, L. Tall Boneset.*Lapham.* Goodhue county, *Sandberg*; Blue Earth county, *Leiberg, Gedge*. Rare. South:**E. perfoliatum**, L. Thoroughwort. Boneset.Common, or frequent, through the south half of the state; upper Mississippi river, *Garrison*; less frequent farther north to the lake of the Woods, *Dawson*. Well known as a bitter tonic.**E. serotinum**, Michx. Thoroughwort. Boneset.*Lapham.* Todd county (frequent), *Upham*; Martin county, and Emmet county, Iowa (common), *Cratty*. South.**E. ageratoides**, L. f. White Snake-root.

Common, or frequent, throughout the state.

PETASITES, Tourn. (NARDOSMIA, Cass.) SWEET COLTSFOOT.**P. sagittata**, Gray.† (N. sagittata, Hook.) Sweet Coltsfoot.Red river valley near Saint Vincent (in a "low damp thicket; in full bloom in the first week of May; seed nearly ripe, June 4; flower with an odor like that of *Crataegus*, white, tinged with purple"), *Dawson*; also on Roseau river, *Scott*. Rare. Northwest.[*P. palmata*, Gray, (*N. palmata*, Hook.) probably also occurs in Minnesota.]**TUSSILAGO**, Tourn. COLTSFOOT.**T. Farfara**, L. Coltsfoot. "Ginger-root."Northeastward, "much used as a cough medicine," *Clark*; lake Pepin, *Miss Manning*.**ADENOCAULON**, Hook. ADENOCAULON.**A. bicolor**, Hook. Adenocaulon.Stearns county, *Garrison*. Rare. North.**ASTER**, Tourn. STARWORT. ASTER.**A. corymbosus**, Ait. Aster.Hennepin county, *Roberts*. [North of lake Superior, *Agassiz*.] Infrequent.**A. macrophyllus**, L. Large-leaved Aster.Abundant north of lake Superior, *Roberts*; lake of the Woods, *Dawson*; upper

* **EUPATORIUM PURPUREUM**, L., var. **MACULATUM**, Darl. Common in open ground, 3 or 4 feet high, often roughish-pubescent: stem commonly purple, striate or sulcate; leaves somewhat rugose, 3-5-nate: inflorescence more compact and depressed. . . . The most widely distributed form. *Gray's Synoptical Flora of N. A.*

† **PETASITES SAGITTATA**, Gray. Leaves from deltoid-oblong to reniform-hastate, from acute to rounded-obtuse, repand-dentate, very white-tomentose beneath, when full grown 7 to 10 inches long: heads short-racemose, becoming corymbose: ligules equalling or shorter than the disk. *Gray's Synoptical Flora of N. A.*

Mississippi river, *Garrison*; Todd and Crow Wing counties (common), *Upham*; White Bear, Ramsey county, *Simmons*. North and east.

A. sericeus, Vent. Silky Aster.

Common through the south half of the state, and frequent in the Red river valley, *Upham*; extending northeast to the upper Mississippi river, *Garrison*, and the mouth of Rainy river, *Macoun*.

A. patens, Ait. Aster.

Upper Mississippi river, *Garrison*; Fergus Falls, *Leonard*; Douglas county, *Mrs. Terry*; Anoka county, *Juni*; Blue Earth county, *Gedge*. Infrequent. South.

A. laevis, L. Smooth Aster.

Frequent, or common, in both var. *levigatus* and var. *cyaneus*, of Gray's *Manual*, through the south half of the state and in the Red river valley; extending northeast to Crow Wing county, *Upham*.

A. azureus, Lindl. Azure Aster.

Prairies of the Blue Earth river, *Geyer*; Goodhue county, *Sandberg*; Minneapolis, *Twining*, *Roberts*; Douglas county, *Mrs. Terry*. South.

A. Shortii, Boott. Short's Aster.

Lapham. Rare. Southeast.

A. undulatus, L. Wavy Aster.

Lapham. Douglas county, *Mrs. Terry*; Blue Earth county, *Gedge*. Infrequent. South.

A. cordifolius, L. Heart-leaved Aster.

Common in woods through the south half of the state, and in the Red river valley; only reported northeastward by *Juni* at Little Marais, lake Superior.

A. sagittifolius, Willd. Arrow-leaved Aster.

North of lake Superior (abundant), *Roberts*, *Juni*; Douglas county, *Mrs. Terry*; falls of the St. Croix, *Parry*; Minneapolis, *Roberts*; lake Pepin, *Miss Manning*; Minnesota river, *Geyer*; Emmet county, Iowa (common), *Cratty*; and westward into Dakota, Gray's *Synoptical Flora of N. A.*

A. Drummondii, Lindl.* Drummond's Aster.

Open grounds and border of woods, Illinois and Minnesota to Texas. Forms pass into *A. sagittifolius*. Gray's *Synoptical Flora of N. A.*

A. ericoides, L. var. *villosum*, Torr. & Gray. Heath-like Aster.

Blue Earth county, *Gedge*. South.

A. multiflorus, Ait. Many-flowered Aster.

Common, often abundant, through the south half of the state and in the Red river valley; extending northeast to Todd and Crow Wing counties (common), *Upham*.

A. dumosus, L. Aster.

Lake Pepin, *Miss Manning*; Blue Earth county, *Gedge*. Infrequent. Southeast.

A. vimineus, Lam. (A. *Tradescanti*, in Gray's *Manual*.) Aster.

Lake Pepin, *Miss Manning*; Douglas county, *Mrs. Terry*; common southward and westward, *Juni*, *Upham*.

***ASTER DRUMMONDII**, Lindl. Pale with a fine and mostly soft cinereous pubescence; leaves from cordate to cordate-lanceolate and mostly on marginated petioles, or the small uppermost lanceolate and sessile by a narrow base, obtusely or acutely serrate (the large 4 inches, smaller about an inch long), sometimes scabrous above: bracts of the involucre acute or acutish; rays violet-blue or paler, 3 to 5 lines long. Gray's *Synoptical Flora of N. A.*

A. Tradescanti, L.* Tradescant's Aster.

Open grounds, Canada to Virginia, Illinois and Saskatchewan. Nearly allied with the two preceding and the two following species. *Gray's Synoptical Flora of N. A.*

A. diffusus, Ait. (A. miser, in *Manual.*) Aster.

Throughout the state. Common north of lake Superior, and at Minneapolis, *Roberts*; lake of the Woods, *Dawson*; Todd county, *Upham*; St. Croix river, *Parry*; Goodhue county, *Sandberg*; Blue Earth county, *Leiberg*; Emmet county, Iowa, *Cratty*.

A. paniculatus, Lam. (A. simplex, and A. tenuifolius, partly, in *Manual.*)

Panicled Aster.

Common, or frequent, throughout the state; especially plentiful westward.

A. polypyllus, Willd.† (A. tenuifolius, partly, in *Manual.*) Aster.

Notes of *A. tenuifolius*, as described in *Gray's Manual*, probably belonging in part to *A. polypyllus*, are as follows: upper Mississippi river, *Houghton*; *Fergus Falls*, *Leonard*; *Douglas county*, *Mrs. Terry*; *Wadena* and *Todd counties*, *Upham*; *Blue Earth county*, *Leiberg*; *Emmet county*, *Iowa* (rare), *Cratty*.

A. salicifolius, Ait. (A. carneus, in *Manual.*) Aster.

Douglas county, *Mrs. Terry*; *Lac qui Parle*, *Upham*; *Anoka county*, *Juni*. [Also northwest to the Saskatchewan river and eastern Montana, *Gray's Synoptical Flora of N. A.*]

A. junceus, Ait. (A. aestivus, in *Manual.*) Aster.

Throughout the state, but infrequent. *Blue Earth county*, *Leiberg*; *Goodhue county*, *Sandberg*; *Anoka county*, *Juni*; *Douglas county*, *Mrs. Terry*; *Pembina*, *Havard*. [North of lake Superior, *Agassiz*.]

A. longifolius, Lam.‡ Long-leaved Aster.

This species (not the one so named in *Gray's Manual*, which is the next; more nearly related with *A. junceus*) doubtless occurs in northern Minnesota.

A. Novi-Belgii, L. (Including *A. longifolius* of *Gray's Manual.*) New York Aster.

Spirit lake, *Iowa*. *Geyer*; *Blue Earth county*, *Gedge*; southwestward (frequent), *Juni*; *Douglas county*, *Mrs. Terry*; *Fergus Falls*, *Leonard*; upper Mississippi river, *Garrison*; *Pembina*, *Havard*.

* ASTER TRADESCANTI, L. Stem slender, 2 to 4 feet high, with numerous erect or ascending branches and branchlets: leaves lanceolate or linear, slightly serrate or entire, thinnish: small heads numerous, corymbosely or somewhat racemosely paniculate [the most notable distinction from *A. vimineus*]; only two or three lines high: bracts of the involucre linear, acutish, partly green at tip and down the back: rays white, or sometimes tinged with lilac, only about 2 lines long. *Gray's Synoptical Flora of N. A.*

† ASTER POLYPHYLLUS, Willd. Mostly tall (4 or 5 feet high), with virgate branches, glabrous: cauline leaves narrowly lanceolate or linear (4 or 5 inches long, quarter to half inch wide); those of flowering branchlets small and subulate-linear: heads paniculate (4 lines high): involucre nearly hemispherical; involucral bracts lanceolate-subulate, outer successively shorter, rather rigid, with green nearly erect tips; rays numerous, bright white, disposed to turn rose-purplish, 4 lines long: akenes minutely pubescent. *Gray's Synoptical Flora of N. A.*

‡ ASTER LONGIFOLIUS, Lam. A foot to a yard high, glabrous or pubescent, leafy: leaves elongated-lanceolate to linear-lanceolate, entire or sparingly serrulate, 3 to 7 inches long, tapering to both ends: involucre 4 to 5 lines high, little or not at all imbricated; its bracts all of nearly equal length, some looser, outermost not rarely quite herbaceous: rays 3 or 4 lines long, violet or purplish, rarely almost white. . . . Low grounds or along streams, *Labrador* to *Montana*, *Slave Lake*, south to *Canada* and *N. New England*. *Gray's Synoptical Flora of N. A.*

A. puniceus, L. Aster.

Common throughout the state, excepting northwestward; extending to Fergus Falls, *Leonard*, and into Dakota, *Gray's Synoptical Flora*; but not observed in the Red river valley, *Upham*.

A. puniceus, L., var. **lucidulus**, Gray. (var. *vimineus*, Torr. & Gray.)
Aster.

Frequent in the south half of the state.

A. prenanthoides, Muhl. Aster.

Lapham. Common in the vicinity of *Hesper*, Iowa, adjoining *Houston* and *Fillmore* counties, *Mrs. Carter*. Southeast.

A. oblongifolius, Nutt. Aster.

Douglas county, *Mrs. Terry*; *Fort Snelling*, *Roberts*; *Minneopa* falls, *Blue Earth* county, *Upham*; *Pipestone* county, *Mrs. Bennett*. South.

[*A. amethystinus*, Nutt., occurs in Iowa, and probably also in Minnesota, *Arthur*.]

A. Novæ-Angliæ, L. New England Aster.

Minneapolis, *Twining*, *Roberts*; *lake Pepin*, *Miss Manning*; common at *Hesper*, *Iowa*, *Mrs. Carter*; *Blue Earth* county, *Gedge*; *Rock* county, *Leiberg*. [Upper Missouri river, *Geyer*, and *Saskatchewan*, *Gray's Synoptical Flora of N. A.*] South and west.

A. modestus, Lindl.* Aster.

Moist woods, *Oregon* to *British Columbia* on the *Pacific*, and east to *Saskatchewan* and *Pembina* (*Macoun*), *Gray's Synoptical Flora of N. A.* Northwest.

[*A. GRAMINIFOLIUS*, *Pursh.*, is *ERIGERON HYSSOPIFOLIUS*, *Michx.*, in *Gray's Synoptical Flora of N. A.*, and will be found accordingly under that genus.]

[*A. acuminatus*, *Michx.*, should be looked for in northern Minnesota.]

A. ptarmicoides, Torr. and Gray. Aster.

Abundant, or common, throughout the state. [The var. *lutescens*, Gray, with "rays pale yellow, small," which occurs in *Manitoba* and *northern Illinois* (*Gray's Synoptical Flora of N. A.*), will probably be found also in Minnesota.]

A. angustus, Torr. and Gray. Aster.

Lapham. Clay county, in the Red river valley, *Gedge*, determined by *Watson*. Northwest.

A. linariifolius, L. (*Diplopappus linariifolius*, *Hook.*) Double-bristled Aster.

Lapham. Rare. East.

A. umbellatus, Mill. (*Diplopappus umbellatus*, *Torr. & Gray.*) Double-bristled Aster.

Throughout the state: abundant northward, common or frequent southward.

A. umbellatus, Mill., var. **pubens**, Gray. Double-bristled Aster.

Lower face of the oblong-lanceolate leaves tomentulose-pubescent, also usually the flowering branchlets.—*Saskatchewan* to upper *Michigan*. *Gray's Synoptical Flora of N. A.*

* *ASTER MODESTUS*, Lindl. Merely pubescent or glabrate: stem more slender than in the two preceding species, 2 feet high: leaves thinnish, lanceolate or broader (2 to 4 inches long), sparingly and acutely serrate or denticulate, very acute, mostly narrowed to a sessile or partly clasping but not auriculate base; heads fewer and smaller than in the preceding, hemispherical, numerous and usually thrysoidly or cymosely congested at the summit of the simple very leafy stem: bracts of the involucre less numerous, loose, and more or less herbaceous (or somewhat colored) almost from the base, linear-attenuate, all equalling the disk: rays numerous and narrow, pale blue: style-appendages lanceolate: akenes hirsute. *Gray's Synoptical Flora of N. A.*

ERIGERON, L. FLEABANE.**E. hyssopifolius**, Michx. (*Aster graminifolius*, Pursh.) Fleabane.North shore of lake Superior, *Juni*; between the lake of the Woods and Red river, *Dawson*. North.**E. Canadensis**, L. Horse-weed. Butter-weed.

Common throughout the state.

E. divaricatus, Michx. Dwarf Fleabane.Open grounds and river banks, Indiana to Minnesota, Nebraska and Texas. *Gray's Synoptical Flora of N. A.***E. acris**, L. Fleabane.North shore of lake Superior, *Macoun*; doubtless in northern Minnesota. [Perhaps the var. *DRÆBACHENSIUS*, Blytt, which has a similar range with the typical species. Somewhat glabrous, or even quite so: involucre also green, naked, at most hirsute only at the base, often minutely viscidulous: slender rays somewhat slightly exserted, sometimes minute and filiform and shorter than the pappus. North shore of lake Superior, etc. *Gray's Synoptical Flora of N. A.*]**E. bellidifolius**, Muhl. Robin's Plantain.Frequent southward; extending north at least to *Isanti* county, *Upham*, and *Clay* county and *Detroit*, *Becker* county, *Gedge*.**E. Philadelphicus**, L. Common Fleabane.

Frequent, occasionally common, throughout the state.

E. glabellus, Nutt. Fleabane.Goodhue county, *Sandberg*; Red river valley near *Saint Vincent*, *Dawson*, *Scott*. [Devil's lake, *Dakota*, *Geyer*.] West.**E. annuus**, Pers. Daisy Fleabane. Sweet Scabious.St. Croix Falls, *Miss Field*; Minneapolis, *Miss Butler*; lake Pepin, *Miss Manning*; frequent in the vicinity of *Hesper*, *Iowa*, adjoining the southern boundary of *Houston* and *Fillmore* counties, *Mrs. Carter*. This species reaches its northwest limit in southeastern Minnesota; it was not observed, though carefully looked for, throughout the remainder of the state.**E. strigosus**, Muhl. Daisy Fleabane.

Throughout the state; common southward, infrequent northward.

[The species referred to the genus *DIPLOPAPPUS*, Cass., in *Gray's Manual*, are included under *ASTER* in his *Synoptical Flora of N. A.*; and in this catalogue they are placed at the end of that genus.]**BOLTONIA, L'Her. BOLTONIA.****B. asteroides**, L'Her. (Including *B. glastifolia*, L'Her.) Boltonia.Common through the south part of the state; extending north at least to Minneapolis, *Williams*, *Alexandria*, *Mrs. Terry*, *Fergus Falls*, *Leonard*, and Devil's lake, *Dakota*, *Geyer*. South and west.**GUTIERREZIA, Lagasca. GUTIERREZIA.****G. Euthamiæ**, Torr. & Gray.* Gutierrezia.Red river valley near *Saint Vincent*, *Scott*, determined by *Watson*. West.* *GUTIERREZIA*, *Lagasca*. Heads small or middle-sized, 6- to 90-flowered, the rays pistillate, fertile, the disk-flowers tubular, perfect and fertile. Involucre varying from narrowly obconic to broadly hemispherical, the scales closely imbricated in several series, rigid, and with greenish herbaceous tips. Receptacle naked. Corollas yellow,

SOLIDAGO, L. GOLDEN-ROD.**S. bicolor**, L. Golden-rod.*Lapham.* The typical species is rare.**S. bicolor**, L., var. **concolor**, Gray. Golden-rod.Common on rocks, north shore of Lake Superior, *Roberts, Juni*; northwest side of Mille Lacs, *Upaham*; falls of the St. Croix, *Parry*.**S. latifolia**, L. Golden-rod.

Common, or frequent, throughout the state.

S. caesia, L. Golden-rod.Lake Minnetonka, *Roberts, Herrick*; lake Pepin, *Miss Manning*. Infrequent. Southeast.**S. puberula**, Nutt. Golden-rod.*Lapham.* Le Sueur county, *Gedge*; Pembina, *Havard*. A golden-rod agreeing well, except as to geographical limits, with the description of this species in Gray's *Manual*, is common on dry prairies throughout southern Minnesota, extending northeast to Todd and Crow Wing counties, *Upaham*.**S. uliginosa**, Nutt. (*S. stricta*, in Gray's *Manual*). Golden-rod.North of lake Superior (common), *Roberts*; Anoka county, *Juni*; St. Croix river, *Parry*; lake Pepin, *Miss Manning*. North.**S. speciosa**, Nutt. Golden-rod.Minneapolis, *Roberts*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*. South.**S. speciosa**, Nutt., var. **angustata**, Torr. & Gray. Golden-rod.Stearns county, *Campbell*; Emmet county, Iowa (rare), *Cratty*.**S. speciosa**, Nutt., var. **rigidiuseula**, Torr. & Gray. Golden-rod.A form of the var. *angustata*, growing in dry open places, with more rigid and rougher-edged small leaves. Minnesota to Nebraska and Texas. *Gray's Synoptical Flora of N. A.***S. Virgaurea**, L., var. **alpina**, Bigelow. Golden-rod.*Lapham.* North.[*S. humilis*, Pursh (*S. Virgaurea*, L., var. *humilis*, Gray), and *S. macrophylla*, Pursh (*S. thyrsoidea*, E. Meyer), probably also occur, with the preceding, in northeastern Minnesota.]

of the ray oval, oblong or linear, of the disk funnel-shaped, 5-toothed, the teeth erect or recurved. Branches of the style in the ray-flower, linear, smooth, the stigmatic lines extending to the top; in the disk, with the hairy appendages shorter or several times longer than the stigmatic portion. Achenia oblong or oboconic, terete or somewhat compressed. Pappus of the disk composed of several oblong or linear chaffy scales, or reduced to a lacerate coroniform border, of the ray similar to that of the disk, but commonly smaller or sometimes obsolete.—Mostly perennial and suffruticose plants of North and South America, with glabrous and often resinous-dotted or varnished linear and entire or broader and denticulate leaves.

G. **EUTHAMIA**, Torr. and Gray. Stems 6 to 15 inches high, numerous from a woody and much-branched base, striated; leaves crowded, narrowly linear, 1 to 2 inches long $\frac{1}{4}$ to 1 line wide, 1-nerved, minutely scabrous, punctate, resinous, and sometimes varnished; heads in little clusters forming compound corymbs; involucres scarcely 2 lines long and 1 line broad, narrowly obovate; flowers of the ray 2 to 5, of the disk 3 to 6; pappus of 9 or 10 obtuse unequal erose-denticulate chaffy scales, a little shorter than the achenium.—Plant growing in dense tufts, when in flower forming a conspicuous yellow round-topped bushy clump. *Eaton in Bot. Rep. of King's Expl. of the Fortieth Parallel.*

S. rigida, L. Golden-rod.

Abundant through the south half of the state, and in the Red river valley, extending northeast to Crow Wing county, *Upham*. Usually from one and a half to two feet high on prairies, where it most abounds; but from three to five feet high in woods and thickets.

S. Riddellii, Frank. Riddell's Golden-rod.

Minneapolis, *Williams*; Ripidan Rapids, Blue Earth county, *Upham*; peat bogs, Blue Earth county, *Leiberg*; common in Emmet county, Iowa, *Cratty*. South.

S. neglecta, Torr. & Gray. Golden-rod.

Lapham. Infrequent. Southeast.

S. patula, Muhl. Golden-rod.

Lapham. Infrequent. Southeast.

S. juncea, Ait. (S. *arguta*, var. *juncea*, Gray, in *Manual*.) Golden-rod.

Common, or frequent, throughout the state, excepting perhaps near its south side; flowering early.

S. juncea, Ait., var. **scabrella**, Gray. (S. *arguta*, var. *scabrella*, Torr. & Gray, in *Manual*.) Golden-rod.

Rice county, *Upham*. Probably infrequent. Southeast.

S. arguta, Ait. (S. *Muhlenbergii*, Torr. & Gray.) Golden-rod.

North of lake Superior, *Juni*. Rare. East.

S. rugosa, Mill. (S. *altissima*, in *Manual*.) Golden-rod.

Blue Earth county, *Gedge*. Infrequent.

S. ulmifolia, Muhl. Golden-rod.

Lapham. Falls of the St. Croix, *Parry*. Infrequent. Southeast.

S. nemoralis, Ait. Golden-rod.

Common, often abundant, throughout the state.

S. nemoralis, Ait., var. **ineana**, Gray.* Golden-rod.

Plains of Minnesota and Dakota (*Nicollet*, etc.) to the Rocky Mountains of Montana and Colorado. *Gray's Synoptical Flora of N. A.*

S. radula, Nutt. Golden-rod.

Blue Earth county, *Leiberg*; Stearns county, *Campbell*; Yellow Medicine county (frequent), *Upham*. South.

S. Missouriensis, Nutt. Golden-rod.

Saint Paul, *Kelley*; Minneapolis, *Twining*, *Roberts*, *Simmons*; Martin county, and Emmet county, Iowa (abundant), *Cratty*; high prairies towards the sources of the Minnesota river, *Geyer*; Red river valley, *Scott*. South and west.

S. Canadensis, L. Golden-rod.

Common throughout the state. [The var. *procera*, Torr. & Gray, probably also occurs in Minnesota, especially northwestward.]

S. serotina, Ait., var. **gigantea**, Gray. (S. *serotina*, in *Manual*.) Golden-rod.

Common, or frequent, throughout the state.

* **SOLIDAGO NEMORALIS**, Ait., var. **INCANA**, Gray. Dwarf, a span to a foot high: leaves oval or oblong, rigid, more or less caudate, sometimes rather strongly serrate, sometimes mostly entire: racemiform clusters erect or the lower somewhat spreading, collected in a dense oblong or conical thyrsus. *Gray's Synoptical Flora of N. A.*

S. serotina, Ait. (*S. gigantea*, in *Manual*.) Golden-rod.

Common, or frequent, throughout the state, especially north of lake Superior, *Roberts*, and in the Red river valley, *Upham*.

S. lanceolata, L. Golden-rod.

Common throughout the state; abundant in the Red river valley.

S. occidentalis, Nutt.* Golden-rod.

Sandy soil, Saint Peter, Nicollet county, *Leiberg*; determined by *Watson* as "probably" this species. Infrequent. Southwest.

APLOPAPPUS, Cass. APLOPAPPUS.

A. spinulosus, DC.† Aplopappus.

Upper Minnesota river, *Geyer*; Yellow Medicine county, *Upham*. Southwest.

GRINDELIA, Willd. GRINDELIA.

G. squarrosa, Dunal.‡ Grindelia.

Common, or frequent, in the west edge of the state, from Rock county, *Leiberg*, and Pipestone City to Saint Vincent, *Upham*; also plentiful on the quartzite ridge in northern Cottonwood county, *Upham*. West.

**SOLIDAGO OCCIDENTALIS*, Nutt. Smooth; stems 2 to 3 feet high, paniculately corybose at the summit, leafy; leaves linear-lanceolate, obscurely 3- to 5-nerved, minutely scabrous on the edges, the larger ones 4 inches long, 3 lines broad; heads rather large, pedicellate in many small corymbs, broadly obconic; involucral scales loosely imbricated in about 3 series, oblong-linear, the straight tips greenish, ciliolate, rather acute; rays 15 to 25, very small; disk-flowers 10 to 15; achenia pubescent. *Eaton* in *Bot. Rep. of King's Expl. of the Fortieth Parallel*.

†*APLOPAPPUS*, Cass. Heads solitary, terminating the branches, or sometimes corybosely or spicately clustered, many-flowered, rarely several-flowered, heterogamous and with fertile rays, or very rarely homogamous, the rays being wanting. Involucre imbricated, the scales with or sometimes without herbaceous or foliaceous tips. Receptacle flat or flattish, foveolate or alveolate-dentate. Appendages of the style-branches triangular-lanceolate, or in the N. American species more commonly elongated subulate. Akenes varying from turbinate to linear, terete, angled, or more or less compressed. Pappus simple, of copious and unequal rigid capillary (scabrous or almost barbellate) bristles.—Herbs or low under-shrubby plants, of various aspect and foliage; with yellow flowers, and pappus varying from tawny to reddish, very rarely bright white. Leaves alternate, rigid. *Gray* in *Botany of California*, from *Proc. Am. Acad.*, vol. viii.

A. *SPINULOSUS*, DC. Herbaceous, canescent with a soft, minute, woolly pubescence; stems many, 1 to 2 feet high, corybosely branched above; leaves small, 9 to 12 lines long, rigid, pinnately or somewhat bi-pinnately parted, segments short, linear-subulate, mucronate with a short bristle; heads small, subglobose, terminating the numerous branchlets; involucre shorter than the disk, scales subulate-lanceolate, mucronulate, imbricated in 3 or 4 series, appressed, canescent; rays 20 to 30; corolla of the disk with very short teeth; pappus pale or tawny, short, very unequal; achenia turbinate, villosus. *Porter and Coulter's Flora of Colorado*.

‡*GRINDELIA*, Willd. Heads many-flowered; the ray-flowers generally present, pistillate, the ligule elongated; disk-flowers perfect, the corolla tubular-funnel-shaped, 5-toothed. Involucre subglobose or hemispherical, the scales imbricated in many rows, often with squarrose tips. Receptacle naked, flat, foveolate. Style with lanceolate hispid appendages as long as the stigmatic portion. Achenium smooth, oblong or ovate somewhat angled. Pappus of 2 to 8 smooth rigid deciduous awns, shorter than the disk-corollas.—Biennial (?), perennial or suffruticose, often resiniferous, Mexican and North American plants. Leaves entire or serrate, often punctate, the caudine ones sessile. Heads corymbed at the ends of the branches, or solitary, mostly rather large.

G. *SQUARROSA*, Dunal. Glabrous and viscidly resinous; stems herbaceous from a

CHRYSOPSIS, Nutt. GOLDEN ASTER.**C. villosa**, Nutt. Golden Aster.

Common throughout most of the state; but probably wanting or infrequent near its south side, and also northeastward. Fort Snelling, *Parry*; Minneapolis (common), *Roberts*; upper Mississippi river, *Houghton*, *Garrison*; common in Stearns and Todd counties and in the Red river valley, *Upham*.

INULA, L. ELECAMPANE.**I. Helenium**, L. *Elecampane*.

Nicollet county, *Aiton*; Minneapolis, *Roberts*. Infrequent.

POLYMNIA, L. LEAF-CUP.**P. Canadensis**, L. Leaf-cup.

Lapham. Rare. South.

SILPHIUM, L. ROSIN-PLANT.**S. laciniatum**, L. Rosin-weed. Compass-Plant.

Common, often abundant, in the south edge of the state; extending north to Goodhue county, *Sandberg*, southeastern Rice county (plentiful), Nicollet county, *Aiton*, southeastern Watonwan county (frequent), and New Ulm (very scarce), *Juni*; and west to Luverne, *Upham*; and into Dakota, Gray's *Synoptical Flora of N. A.* A gum which is frequently chewed like that of the spruce, exudes from stems of this plant, when their tops are broken off. The peculiar deflection of the leaves to a north and south direction, at the same time presenting one edge upward and the other toward the ground, is very noticeable. (See *American Naturalist*, vol. xvi, pp. 625-635, and vol. xvii, pp. 542 and 656.)

S. terebinthinaceum, Jacq. Prairie Dock. Rosin-Plant.

Lapham. Blue Earth county, *Leiberg*. South.

S. integrifolium, Michx. Rosin-Plant

Lapham. South.

S. perfoliatum, L. Cup-Plant.

Common southward; extending north to Minneapolis, *Roberts*, the Minnesota river (common), Fergus Falls, *Leonard*, and the Sisseton Agency in Dakota, *Upham*.

PARTHENIUM, L. PARTHENIUM.**P. integrifolium**, L. Parthenium.

Lapham. South.

IVA, L. MARSH ELDER. IVA.**I. xanthiifolia**, Nutt. (*Cyclachæna xanthiifolia*, Fres.) Iva.

Frequent southeastward; abundant southwestward; extending north to Todd

perennial caudex, 12 to 20 inches high, corymbosely branched above; leaves somewhat rigid, glaucous and punctate-reticulated; the radical ones spatulate-lanceolate, narrowed into a petiole, dentate or incised; the caudine mostly oblong, sessile and partly clasping, finely toothed or spinulose-serrate; heads [yellow] numerous; involucels sub-globose, 6 lines broad; the scales very rigid, closely appressed, but with very long reflexed or squarrose subulate points; rays numerous, rather narrow; pappus of 2 to 4 very rigid deciduous bristles or awns. August. *Eaton in Bot. Rep. of King's Expl. of the Fortieth Parallel*.

county (common), and in the Red river valley to Grand Forks, *Upham*, and Saint Vincent, *Scott, Havard*. "A new weed that is steadily gaining ground, traveling eastward and possibly southward. It is a candidate for the same situations the large ragweed prefers—the edges of fields, and along roadsides and streets, but especially about barns. If circumstances are unfavorable, it can blossom when only a few inches high, while under more fortunate conditions it reaches much above one's head. It closely resembles cocklebur when young, but as it grows larger has more the appearance of the common sunflower, with flowers, however, after the pattern of the ragweed." *Arthur*.

AMBROSIA, Tourn. RAGWEED.

A. trifida, L. Great Ragweed.

Abundance and range nearly like the last; a similarly vile weed.

A. trifida, L., var. **integrifolia**, Torr. & Gray. Smaller Ragweed.

Hennepin county, *Herrick*; Blue Earth county, *Leiberg*.

A. artemisiæfolia, L. Roman Wormwood. Hog-weed. Bitter-weed.

Common or frequent, through the south half of the state; extending northwesterly to Pembina in the Red river valley, *Havard*, and to the Saskatchewan river.

A. psilostachya, DC. Western Ragweed.

Frequent through the south half of the state; common in the Red river valley; also found at the lake of the Woods, *Dawson*.

XANTHIUM, Tourn. COCKLEBUR. CLOTHBUR.

X. Canadense, Mill. (*X. strumarium*, in *Manual*.) Common Cocklebur.

Frequent, or common, through the south half of the state; extending north to the northwest side of Mille Lacs (common), and the Red river valley; found at the lake of the Woods, *Dawson*. (A variety of this species, having no pubescence between the prickles of the fruit, is common, occurring in company with the ordinary type, in Blue Earth county and along the Minnesota river. *Leiberg*.)

X. Canadense, Mill., var. **echinatum**, Gray. Cocklebur.

Banks of Spirit lake, and head-waters of Little Sioux river, *Geyer*; banks of the Red river (abundant), *Scott*; and on the shore of lake Superior.

HELIOPSIS, Pers. Ox-EYE. FALSE SUNFLOWER.

H. laevis, Pers. Ox-eye. False Sunflower.

North of lake Superior (common), *Juni, Roberts*; upper Mississippi river, *Garrison*; Pembina, *Chickering*. Perhaps these references should be placed instead under the following species, which certainly is the prevailing representative of the genus in this state.

H. scabra, Dunal.* (*H. laevis*, Pers., var. *scabra*, Torr. & Gray.) Ox-eye. False Sunflower.

Red river prairie, *Dawson, Scott, Havard*; Todd county, also Minneapolis and Steele county (common), *Upham*; Stearns county, *Garrison*; Anoka county and New Ulm, *Juni*; Martin county and Emmet county, Iowa (abundant), *Cratty*; Blue Earth county, *Gedge*.

* **HELIOPSIS SCAERA**, Dunal. Hispidulous-scabrous, especially the leaves, 2 to 4 feet high: leaves from broadly ovate and subcordate to ovate-lanceolate, the upper occasionally entire: rays oblong, nearly or quite an inch in length: akenes smooth, but the angles above pubescent when young, the summit usually bearing an obscure or evident and irregular coroniform chaffy pappus, or sometimes 2 or 3 conspicuous and rigid teeth! Otherwise as the foregoing, into which it may pass. *Gray's Synoptical Flora of N. A.*

ECHINACEA, Mœnch. PURPLE CONE-FLOWER.**E. angustifolia**, DC. Narrow-leaved Purple Cone-flower.

Abundant south and southwest; extending north to Anoka county, *Juni*, Stearns county, *Campbell*, Grant county, *Roberts*, and Clay county (common), *Upham*. (The club-shaped stems, six to nine inches high, remain standing through the winter.)

RUDBECKIA, L. CONE-FLOWER.**R. laciniata**, L. Cone-flower.

Common, or frequent, through the south half of the state and in the Red river valley; on Roseau river, *Dawson*.

R. subtomentosa, Pursh. Cone-flower.

Lapham. Stearns county, *Garrison*. Southeast.

R. hirta, L. Cone-flower.

Common, occasionally abundant, throughout the state, excepting perhaps northeastward.

LEPACHYS, Raf. LEPACHYS.**L. pinnata**, Torr. & Gray. Lepachys.

Frequent, in some places abundant, southward; extending north to Minneapolis (common) *Roberts*, Stearns county, *Campbell*, and in the Red river valley to Clay county (common), *Upham*, and Pembina, *Havard*.

L. columnaris, Torr. & Gray.* Lepachys.

Upper Minnesota river, *Geyer*; near Moorhead, *Leiberg*, and Glyndon, Clay county, *Gedge*; Pembina, *Scott*. West.

HELIANTHUS, L. SUNFLOWER.**H. petiolaris**, Nutt.† Sunflower.

Dunes at Sand Hill river, Garfield, Polk county (lanceolate leaves, opposite on lower half of the stem; rays about 12, one to one and a half inches long; disk dark-purple), *Upham*. West.

H. annuus, L.‡ (H. lenticularis, Dougl.) Sunflower.

Frequent in the Red river valley; Saint Vincent, Grand Forks, and Norman county, *Upham*. West. (Indigenous throughout the western half of the United States; referred to H. annuus, L., the cultivated sunflower, as its original and typical form, by Gray in the *Botany of California* and *American Journal of Science*, series 3, xxv, 245. "Gigantesque forms everywhere commonly cultivated," and occasionally adventive.)

*LEPACHYS COLUMNARIS, Torr. & Gray. Strigose-scabrous, branched from the base, 1 to 2 feet high; radical leaves usually undivided, spatulate-lanceolate, caudine ones pinnately parted, the upper sessile, segments linear-lanceolate or oblong, rigid, mucronulate, entire, rarely somewhat lobed; disk columnar, longer than the 5 to 8 oblong or obovate-oval, recurved, yellow rays; chaff with woolly tips. Disk 1 inch or more long. *Porter and Coulter's Flora of Colorado*.

†HELIANTHUS PETIOLARIS, Nutt. Stem erect, 1 to 3 feet high, strigose or hispid, branching; leaves scabrous, alternate, the lower sometimes opposite, ovate-lanceolate or ovate, entire or somewhat repand-toothed, 3-nerved, on very long, slender, scabrous petioles; peduncles terminal, naked, bearing solitary (usually large) heads; scales of the involucre lanceolate, acute or acuminate; disk-flowers pubescent at base; achenia villous; pappus of two chaffy awns. Heads very variable in size. *Porter and Coulter's Flora of Colorado*.

‡See description of HELIANTHUS ANNUUS, L., on next page.

H. rigidus, Desf. Sunflower.

Common through the south half of the state and in the Red river valley; one to three feet high on the natural prairie; persisting as a troublesome weed in wheat-fields during the first two or three years of cultivation, there growing from three to five feet in height.

H. laetiflorus, Pers. Sunflower.

Martin county, *Gedge*; Blue Earth county, *Leiberg*; Redwood, Todd (common), Wadena and Polk counties, *Upham*; Pembina, *Havard*. South and west.

H. occidentalis, Riddell. Sunflower.

St. Croix river, *Parry*; plentiful near lake Johanna, Ramsey county, *Roberts, Her-rick*; lake Pepin, *Miss Manning*. Infrequent. Southeast.

H. Maximiliani, Schrader.* Sunflower.

Common in the south half of the state; reaching eastward at least to Minneapolis, where it is plentiful; also abundant in the Red river valley; extending northwest to the Saskatchewan river (Gray's *Synoptical Flora of N. A.*). Usually from nine to eighteen inches high, or sometimes three to five feet, on the natural prairie; but continuing as the most troublesome weed in wheat-fields, where it commonly grows four to six feet in height and sometimes eight feet or more; foliage dull, grayish green; flowers showy, occasionally double (with all the corollas ligulate), blooming from July to September. The most noteworthy member of this genus in Minnesota. West and south.

Determined by *Prof. Asa Gray*; previously supposed, by the local botanists of the state, to be *H. giganteus*, L.; in Dr. Lapham's catalogue, it appears to be called *H. tomentosus*, Michx.; to *R. I. Cratty* and *J. C. Arthur* belongs the credit of obtaining its correct identification. (See Arthur's *Contributions to the Flora of Iowa*, No. V, and his note respecting this species in the *Botanical Gazette*, viii, p. 339. Dr. George Engelmann wrote me, Dec. 27, 1883: "The notice in the *Botanical Gazette* about *Helianthus Maximiliani*, wondering that it was found so far north, in Minnesota, is founded on error. The species comes originally from the upper Missouri, latitude of Minnesota, and has often been collected in Minnesota also by me; but extends, like many prairie plants, through many degrees of latitude, to Texas.")

H. giganteus, L. Sunflower.

St. Croix river, *Parry*; lake Pepin, *Miss Manning*; Minneapolis, *Twining*; north of lake Superior, *Roberts*; and northwest to the Saskatchewan river, Gray's *Synoptical Flora of N. A.*. Infrequent. East and north.

H. grosse-serratus, Martens. Sunflower.

Moist prairies, Minnesota river, *Geyer*; abundant in Martin county and in Emmet county, Iowa, *Cratty*; lake Pepin, *Miss Manning*; moist land, Minneapolis, and Red-

HELIANTHUS ANNUUS, L. (*H. lenticularis*, Dougl.) Annual, scabrous and even hispida; stems purple-spotted, stout, 3 to 8 feet high, branching; leaves alternate, ovate, acuminate, coarsely serrate, 3 to 6 inches long, 2 to 4 inches broad, 3-nerved at the base and suddenly narrowed into a petiole nearly as long as the leaf; uppermost leaves more lanceolate; heads mostly panicled, peduncled, $2\frac{1}{2}$ to 4 inches broad; involucre spreading; the numerous ovate ciliate abruptly acuminate scales imbricated in about 3 rows, outer ones shortest; rays 20 to 24 [to 40], large; chaff of the flat receptacle nearly as long as the purplish disk-flowers, concave, carinate, tricuspidate, the middle point much the strongest and dark-colored; achenia finely appressed-pubescent; pappus of two lanceolate chaffy awns. *Eaton* in *Bot. Rep. of King's Expl. of the Fortieth Parallel*.

***HELIANTHUS MAXIMILIANI**, Schrad. Stem strigose-scabrous, branched; leaves alternate (those of the branches sometimes opposite), lanceolate, entire or nearly so, tapering to each end, acuminate, very scabrous and often canescent-strigose on both sides, the lower petioled; scales of the involucre lanceolate-subulate, much attenuate, strigose-canescens; pappus of two lanceolate slightly fringed chaffy scales. *Arthur's Contributions to the Flora of Iowa*, No. V, from *Torrey and Gray's Flora of N. A.*

wood, Stearns and Pope counties (common), *Upham*; less frequent, or wanting, in the Red river valley; four to eight feet high; leaves dark green, coarsely toothed, with intervals varying from a quarter to two-thirds of an inch between the teeth. South.

H. strumosus, L. Sunflower.

Through the south half of the state, infrequent. Douglas county, *Mrs. Terry*; New Ulm, *Juni*; Blue Earth county, *Leiberg*; Minneapolis, *Twining*, *Kassube*; lake Pepin, *Miss Manning*. [The var. *mollis*, *Torr. & Gray*, probably also occurs in this state.]

H. divaricatus, L. Sunflower.

Minneapolis, etc. (common), *Roberts*; Saskatchewan river, *Gray's Synoptical Flora of N. A.* South and west.

H. hirsutus, Raf. Sunflower.

Minneapolis, *Twining*, *Upham*; Worthington, Nobles county (common), *Foote*. South.

H. tracheliiifolius, Willd. Sunflower.

Frequent, or common, throughout the state, excepting northeastward. Minneapolis, *Roberts*; lake Pepin, *Miss Manning*; upper Mississippi river, *Garrison*; Pembina, *Havard*; Rice (common), Morrison and Polk counties (often showing forms intermediate between this and the next, partaking of the characters of both), *Upham*.

H. decapetalus, L. Sunflower.

Lapham. Anoka county, also New Ulm (common), *Juni*; Stearns county, etc., *Upham*. [The form called var. *frondosus*, in *Gray's Manual*, has been observed in Stearns county by *Garrison*.]

H. tuberosus, L. (*H. doronicoides*, in *Manual*). Sunflower. (Original of Jerusalem Artichoke.)

Throughout the state. Minnesota and St. Croix rivers, *Parry*; Redwood Falls, *Miss Butler*; New Ulm (common), *Juni*; upper Mississippi river, *Garrison*; common in the valley of the St. Louis river and northeasterly, *Clark*; extending northwest to the Saskatchewan river, *Gray's Synoptical Flora of N. A.*

H. tuberosus, L., var. **subcanescens**, Gray. Sunflower.

Mostly dwarf (about two feet high), comparatively small-leaved, rough-hispidulous or scabrous, but the lower face of the leaves whitish with soft and fine pubescence.—Plains of Minnesota, Dakota, etc., *Kennicott*, *Coues*, *Ward*, sometimes with well-developed tubers. *Gray's Synoptical Flora of N. A.*

COREOPSIS, L. TICKSEED.

C. lanceolata, L. Tickseed.

Lapham. Rare. Southeast.

C. tinctoria, Nutt.* Tickseed.

Low ground, Saskatchewan and Minnesota to Louisiana, Texas and Arizona. *Gray's Synoptical Flora of N. A.*

C. palmata, Nutt. Tickseed.

Common through the south half of the state; extending north to the upper Mississippi river, *Houghton*, *Garrison*, and northwest to Winnipeg, *Gray's Synoptical Flora of N. A.*

* **COREOPSIS TINCTORIA**, Nutt. Annual: glabrous, 2 or 3 feet high: leaves opposite; radical and some lower cauline leaves 2-pinnately divided into lanceolate or linear divisions; upper with 3 to 7 linear divisions: outer involucre short and close: rays from half to three-fourths inch long, sometimes base only, sometimes nearly all crimson-brown: akenes oblong, thinnish, moderately incurved, wingless; pappus none or an obscure border. *Gray's Synoptical Flora of N. A.*

C. aristosa, Michx. Tickseed.

Anoka county, *Juni*; peat bogs, Blue Earth county, *Leiberg*. Infrequent. South.

C. trichosperma, Michx. Tickseed Sunflower.

Lapham. Saint Paul, *Kelley*. Southeast.

BIDENS, Tourn. BUR-MARIGOLD.**B. frondosa**, L. Common Beggar-ticks. Stick-tight.

Common, or frequent, throughout the state.

B. connata, Muhl. Swamp Beggar-ticks.

Lapham. Blue Earth county, *Leiberg*; Minneapolis, *Roberts*. South.

B. cernua, L. Smaller Bur-Marigold.

Common north of lake Superior, *Roberts*, and at Glenwood, Pope county, *Upham*; Stearns county, *Campbell*; Anoka county, also New Ulm, *Juni*; Ramsey county, *Kelley*; lake Pepin, *Miss Manning*; Nobles county, *Leiberg*; not common southward, nor in the Red river valley.

B. chrysanthemoides, Michx. Larger Bur-Marigold.

Common throughout the state.

B. Beckii, Torr. Water Marigold.

St. Croix river to the sources of the Mississippi, *Houghton*; lake of the Woods, *Dawson*; Minneapolis (common), *Roberts*. Probably frequent throughout the state.

DYSODIA, Cav. FETID MARIGOLD.**D. chrysanthemoides**, Lag. Fetid Marigold.

Nobles county, *Leiberg*. Infrequent. South.

GAILLARDIA, Fougeroux. GAILLARDIA.**G. aristata**, Pursh.* Gaillardia.

Lapham. Red river valley, in Clay county, *Gedge*, Marshall county, *Winchell*, and near Saint Vincent, *Scott*. West.

***GAILLARDIA**, Fougeroux. Heads many-flowered, radiate; rays neutral, deciduous, many-nerved, the apex trifid; disk-flowers perfect, the tube short, the 5-cleft limb hispid with articulate usually colored hairs. Receptacle convex, usually fimbriate. Involucular scales in two or three series, from a rigid base, running into a leafy appendage longer than the disk. Branches of the style terminated by a long awl-shaped hispid appendage. Achenia oblong or inversely pyramidal, villous. Pappus of 6 to 10 membranous or hyaline scales, the midnerve produced into a slender awn.—North American herbs more or less pubescent or glandular. Leaves alternate, the lower ones petioled and often lobed, the upper sessile and entire. Heads on long naked peduncles. Rays yellow, often saffron-colored or brownish-purple at the base. Disk-flowers yellow or violet. *Bot. Rep. of King's Expl. of the Fortieth Parallel*.

G. ARISTATA, Pursh. Perennial, villous-pubescent or almost tomentose with jointed hairs; stem simple or branched, 1 to 2 feet high; leaves minutely punctate; radical and lower ones lanceolate, tapering into slender petioles, sinuate pinnatifid or coarsely toothed, minutely serrate or nearly entire; the uppermost linear or oblong-lanceolate, sessile, usually dilated at the base and partly clasping; heads large, 1½ to 2½ inches in diameter, including the rays; involucre hirsute; corollas of the disk with short, broadly subulate teeth, of a rich brownish-purple or maroon color; rays 10 to 18, crowded, elongated-cuneiform, deep yellow; chaff of the pappus 6 to 8, broadly lanceolate; fimbriae of the receptacle few, aristiform, slender, distinct, not dilated at the base, 2 to 3 times the length of the nearly smooth achenia. *Porter and Coulter's Flora of Colorado*.

G. pinnatifida, Torr.* Gaillardia.

Red river prairie, *Dawson*, West (mostly southwest). [Perhaps more correctly referable to the preceding species.]

HELENIUM, L. SNEEZE-WEED.**H. autumnale**, L. Sneeze-weed.

Common through the south half of the state and in the Red river valley ; extending northeastward at least to the upper Mississippi river, *Garrison*.

ANTHEMIS, L. CHAMOMILE.**A. Cotula**, L. (*Maruta Cotula*, DC.) May-weed. Dog Fennel.

A common, often abundant, weed in the southern two-thirds of the state ; less frequent in clearings of the forest farther north ; also less common westward, and scarce from Ada northward in the Red river valley.

A. nobilis, L. Garden Chamomile.

Adventive, Beaver Bay, *Juni*.

ACHILLEA, Vaill. YARROW.**A. Millefolium**, L. Common Yarrow or Milfoil.

Common throughout the state. The following notes describe this species on the north shore of lake Superior : "Abundant all along the shore, forming a fringe of white just on the line between the forest trees and the waves ; was not found in other situations." *Juni*.—"The rose-colored variety occurs sparingly, showing all shades of color from white to a quite deep pink." *Roberts*.

CHRYSANTHEMUM, Tourn. CHRYSANTHEMUM.**C. Leucanthemum**, L. (*Leucanthemum vulgare*, Lam.) Ox-eye Daisy. White-weed.

Lake City, *Miss Manning*; Stillwater, *Miss Field*; Mankato, *Prof. Bechdolt*; Minneapolis (frequent), *Roberts*; Saint Cloud, *Campbell*; upper Mississippi river, *Garrison*. Rare or local ; inclined to spread ; an abundant and pernicious weed in states farther east.

TANACETUM, Tourn. TANSY.**T. vulgare**, L. Common Tansy.

Adventive : lake Pepin; Goodhue county ; Minneapolis ; Blue Earth county ; Emmet county, Iowa.

T. Huronense, Nutt. Lake Huron Tansy.

Upper Mississippi river, *Garrison*. Infrequent. North.

ARTEMISIA, Tourn. WORMWOOD.**A. glauca**, Pall.† Wormwood.

Saskatchewan and Minnesota, *Drummond*, *Nicollet*, *Kennicott*. (*Gray's Synoptical Flora of N. A.*)

**GAILLARDIA PINNATIFIDA*, Torr. Perennial, canescent ; stems 8 to 12 inches high, branching ; leaves sessile, pinnatifid, the rachis and remote lobes linear ; heads rather small ; involucre in about two series, nearly equal to the disk ; rays deeply 3-cleft ; chaff of the pappus lanceolate ; fimbrillæ of the receptacle aristæform, slender, sparse, longer than the achénia. *Porter and Coulter's Flora of Colorado*.—A showy flower ; heads 1 to 2 inches broad ; rays yellow, or purple toward the base ; disk-flowers purplish : leaves 1 to 3 inches long. *Bot. Rep. of King's Expl. of the Fortieth Parallel*.

† See description of *ARTEMISIA GLAUCA*, Pall., on next page.

A. dracunculoides, Pursh. Wormwood.

Common through the south half of the state, and probably occurring also, but less frequently, in the Red river valley ; extending northeast to Crow Wing and Todd counties, *Upham*.

A. borealis, Pallas. Wormwood.

Upper Mississippi river, *Garrison*. North. [Probably the var. *WORMSKIOLDII*, Bess., which is taller, 10 to 16 inches high, with more numerous heads in looser or compound narrower thrysus. *Gray's Synoptical Flora of N. A.*]

A. Canadensis, Michx. Wormwood.

Lake Superior to sources of the Mississippi, *Houghton*, *Garrison*; lake of the Woods, *Dawson*; Red river valley, *Scott*; White Bear, Ramsey county, *Kelley*. North.

A. caudata, Michx. Wormwood.

Common through the south half of the state ; abundant (frequently having galls) in the Red river valley, *Upham*.

A. serrata, Nutt.* Wormwood.

Prairies and low grounds, Illinois to Dakota ; first collected by Nuttall. (*Gray's Synoptical Flora of N. A.*)

A. longifolia, Nutt.† Wormwood.

Rocky banks, Minnesota and Nebraska to Saskatchewan and Montana ; first collected by Nuttall, or by Lewis and Clarke. (*Gray's Synoptical Flora of N. A.*)

A. Ludoviciana, Nutt. Western Mugwort. "Sage."

The form with incised or subpinnatifid leaves is occasionally found through the south half of the state and in the Red river valley, *Upham*. This is not regarded by Gray's *Synoptical Flora* as distinct from the form with undivided leaves (var. *gnaphalodes*, in *Manual*), which has been noted as follows : Minneapolis, *Roberts*; Blue Earth county, *Leiberg*; abundant in Martin county, and in Emmet county, Iowa, *Cratty*; Red river valley (common), *Upham*, *Scott*. (Mr. Arthur states that the first of these forms is infrequent or rare in Iowa ; but that the second is common there. Specimens of this species sent by Prof. Gedge from Marshall, Lyon county, in rich soil near the Redwood river, have the broadly lanceolate leaves all entire or only sparingly toothed, with their upper surface nearly glabrate and green ; as is said by Gray's *Synoptical Flora* to be sometimes their condition.)

A. biennis, Willd. Biennial Wormwood.

Frequent, often common, throughout the state.

A. Absinthium, L. Common Garden Wormwood.

Lapham. Blue Earth county, *Leiberg*. Rarely adventive.

ARTEMISIA GLAUCA, Pall. Minutely silky pubescent or canescent, sometimes glabrate and glaucous : stems strict, a foot or two high, somewhat woody at base : leaves rather short, from linear- to oblong-lanceolate, mostly entire, occasionally some 3-cleft, or the lowest even more divided : heads nearly of the next, into which it probably passes. *Gray's Synoptical Flora of N. A.*

***ARTEMISIA SERRATA**, Nutt. Stems 6 to 9 feet high, very leafy ; leaves green and glabrous above, white-tomentose beneath, lanceolate or uppermost linear, 3 to 7 inches long, all serrate with sharp narrow teeth, pinnately veined, the earliest sometimes pinnately incised : heads amply paniculate, rather few-flowered, less than two lines long, greenish, hardly pubescent. *Gray's Synoptical Flora of N. A.*

†**ARTEMISIA LONGIFOLIA**, Nutt. Stem 2 to 5 feet high : leaves entire, at first tomentulose, but usually glabrate above, white tomentose beneath, linear or linear-lanceolate (3 to 7 inches long, 1 to 5 lines wide) ; veins obsolete : heads amply paniculate, usually canescent, 2 to 3 lines long. *Gray's Synoptical Flora of N. A.*

A. frigida, Willd. Wormwood. "Sage."

Lake Superior; "rising ground, east of the Red river prairie," *Dawson, Scott*; and southward to Minneapolis (plentiful on the river bluffs below the falls of St. Anthony) and Fort Snelling, lake Pepin, *Miss Manning*, and Pipestone county, *Leiberg, Mrs. Bennett*. Local.

GNAPHALIUM, L. CUDWEED. EVERLASTING.

G. decurrens, Ives. Everlasting.

North shore of lake Superior (Deronda bay and Grand Portage island), *Juni*; Nicollet county, *Gedge*. Infrequent. Northeast.

G. polyccephalum, Michx. Common Everlasting.

Throughout the state, but infrequent. Lake Superior, *Whitney*; lake of the Woods, *Dawson*; St. Croix Falls, *Miss Field*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*.

G. uliginosum, L. Low Cudweed.

Lapham. Pipestone county, *Mrs. Bennett*. Infrequent.

ANAPHALIS, DC. EVERLASTING.

A. margaritacea, Benth. & Hook. (*Antennaria margaritacea*, R. Br.) Pearly Everlasting.

Common at Beaver Bay (north shore of lake Superior), and at Minneapolis, *Roberts*; Wadena county, etc., *Upham*; Blue Earth county, *Leiberg*. Throughout. Local.

ANTENNARIA, Gärtn. EVERLASTING.

A. plantaginifolia, Hook. Plantain-leaved Everlasting.

Common, or abundant, throughout the state.

ERECHTITES, Raf. FIREWEED.

E. hieracifolia, Raf. Fireweed.

Stearns county, *Garrison*; Douglas county, *Mrs. Terry*; falls of the St. Croix, *Parry*; Minneapolis, *Kassabe*; lake Pepin, *Miss Manning*; Anoka county, also New Ulm, *Juni*; Blue Earth county (common), *Leiberg*. South.

CACALIA, L. INDIAN PLANTAIN.

C. reniformis, Muhl. Great Indian Plantain.

Fillmore county, *Winchell*; lake Pepin, *Miss Manning*; Hennepin county, *Herrick*. Infrequent. South.

C. atriplicifolia, L. Pale Indian Plantain.

Goodhue county, *Sandberg*. Southeast.

C. tuberosa, Nutt. Tuberous Indian Plantain.

Dakota county (frequent), *Upham*; Steele county, *Miss Bixby*; Blue Earth county, *Leiberg*; New Ulm, *Juni*; common in Martin county and in Emmet county, Iowa, *Cratty*. South.

SENECIO, Tourn. GROUNDSEL.

S. vulgaris, L. Common Groundsel.

Mankato (frequent), *Leiberg*; Saint Paul, *Kelley*.

S. palustris, Hook. Groundsel.

Common, or frequent, through the northern and central portions of the state:

extending eastward at least to the St. Louis river, *Mrs. Herrick*, Morrison county and Minneapolis, *Upham*, Goodhue county, *Sandberg*, and lake Pepin, *Miss Manning*; abundant about lakes in Grant county, *Roberts*, and in swamps near New Ulm, *Juni*; very rare in Emmet county, Iowa, *Cratty*.

S. integrifolius, Nutt.* Groundsel.

Lapham. West.

S. aureus, L. Golden Ragwort. Squaw-weed. Life-root.

Common, or frequent, throughout the state, in some portions abundant.

S. aureus, L., var. *obovatus*, Torr. & Gray. Golden Ragwort. Squaw-weed.

Minneapolis, *Kassube*; Pipestone county, *Mrs. Bennett*; and perhaps throughout the state.

S. aureus, L., var. *Balsamitae*, Torr. & Gray. Golden Ragwort. Squaw-weed.

Throughout the state. North of lake Superior, *Agassiz*; Pembina, *Chickering*; Pokegama Falls, *Houghton*; Minneapolis, *Roberts*.

S. canus, Hook.† Groundsel.

Put in bay, north shore of lake Superior, *Juni*. North.

S. lugens, Richardson.‡ (Including var. *Hookeri*, Eaton.) Groundsel.

Red river valley near Moorhead, *Leiberg*; Pipestone county, *Mrs. Bennett*. [Also Plymouth county, in northwestern Iowa, *Arthur*.] West.

ARNICA, L. ARNICA.

A. Chamissonis, Less. (A. *mollis*, Hook.) Arnica

North shore of lake Superior, *Juni*. North.

CENTAUREA, L. STAR THISTLE.

C. Cyanus, L. Blue-bottle. Bachelor's-Button.

Escaped from gardens, Blue Earth county, *Leiberg*.

***SENECIO INTEGRIFOLIUS**, Nutt. Glabrous throughout; stem simple, striate, 12 to 18 inches high; leaves entire; radical ones 3 to 5 inches long and 1 to 2 inches wide, rather obtuse, tapering into a petiole, somewhat fleshy, upper small, lanceolate, acute, partly clasping; corymb simple or nearly so; heads rather large, 8 to 20; involucre hemispherical, bracteolate, scales 15 to 20, narrowly linear, acute; rays about 8, small; disk-flowers 40 to 50; achenia striate, nearly glabrous. *Porter and Coulter's Flora of Colorado*.

†**SENECIO CANUS**, Hook. Whitish tomentose throughout; stems tufted, 2 to 12 inches high; radical leaves obovate, obtuse, narrowed into short petioles; the caudine sessile, lanceolate, pinnately cleft, or with a few teeth near the base, rarely entire; heads rather large, few in a simple corymb; involucre nearly ecalyculate; rays 8 to 12, not twice as long as the involucre; achenia glabrous. *Eaton in Bot. Rep. of King's Expl. of the Fortieth Parallel*.

‡**SENECIO LUGENS**, Richardson. Lightly floccose-woolly when young, in the typical form early glabrate and bright green: stem 6 inches to 2 feet high, few- and small-leaved and naked above, terminated by a cyme of several or rather numerous heads (these about five lines high): radical and lower caudine leaves spatulate, varying to oval or oblong, either gradually or abruptly contracted at base into a winged or marginated short petiole, usually repand- or callosus-denticulate; upper caudine lanceolate or reduced and bract-like; bracts of the campanulate involucre lanceolate, with obtuse or acutish commonly blackish-sphacelate tips: heads many-flowered: rays 10 or 12, conspicuous. *Gray's Synoptical Flora of N. A.*

CNICUS, Tourn. (Included in *CIRSIUM* by *Manual.*) THISTLE.**C. lanceolatus**, Hoffm. Common Thistle.

Frequent, but seldom plentiful, throughout the state. North of lake Superior, *Juni*; *Pembina*, *Havard*; *Minneapolis*, *Griswold*, *Kassabe*; *lake Pepin*, *Miss Manning*; *Wabasha*, *Gibson*; *Nicollet county*, *Aiton*; *Blue Earth county* and southward (common), *Leiberg*.

C. Pitcheri, Torr. Pitcher's Thistle.

North shore of lake Superior, *Macoun*; doubtless in Minnesota.

C. undulatus, Gray. Thistle.

North of lake Superior (in a grass field at *Grand Marais*, said to have made its first appearance in 1878), *Roberts*. [Near *Fort Pierre*, *Dakota*, *Geyer*.] Plains, &c., from *lake Huron* and *Minnesota* to *Saskatchewan*, west to *Oregon*, south to *Kansas* and *New Mexico*. *Gray's Synoptical Flora of N. A.*

C. undulatus, Gray, var. **canescens**, Gray. Thistle.

Merely a form with smaller heads, sometimes not over an inch long, the leaves varying from ciliately spinulose-dentate to deeply pinnatifid.—*Minnesota* to *New Mexico* and southern *Utah*. *Gray's Synoptical Flora of N. A.*

C. undulatus, Gray, var. **megacephalus**, Gray. Thistle.

Stouter form, usually broader-leaved, with broad heads 2 inches or more long.—*Minnesota* and *Texas* to *Idaho*. *Gray's Synoptical Flora of N. A.*

C. altissimus, Willd. Tall Thistle.

Lake Pepin, *Miss Manning*; *Minneapolis*, *Simmons*; *Faribault*, *Miss Beane*; *Blue Earth county*, *Leiberg*; abundant in *Martin county*, and in *Emmet county*, *Iowa*, *Cratty*; common northwestward and in the *Red river valley*, *Upham*, *Scott*. South and west.

C. altissimus, Willd., var. **discolor**, Gray. (C. *discolor*, Muhl.) Thistle.

Minneapolis, *Kassabe*, *Roberts*, *Simmons*; *Hesper*, *Iowa* (common), *Mrs. Carter*; *Worthington* (common), *Foote*; *Redwood Falls*, *Pemberton*; *Anoka county*, *Juni*; *Stearns county*, *Garrison*; *Clay county*, *Upham*; *Pembina*, *Havard*. South and west.

C. muticus, Pursh. Swamp Thistle.

Common, or frequent, throughout the state.

C. pumilus, Torr. Pasture Thistle.

Goodhue county, *Sandberg*; *Dakota county* (frequent), *Upham*; *Anoka county*, *Juni*; *Stearns county*, *Garrison*; *Alexandria*, *Douglas county*, *Mrs. Terry*. South.

C. arvensis, Hoffm. Canada Thistle.

Newburgh, *Fillmore county*, *Mrs. Carter*; covering about an acre close west of *Rochester*, *Olmsted county*; a few miles east of *Faribault*; *Stillwater*, *Miss Field*; on *Western avenue*, at the west border of *Minneapolis*, spreading, *Roberts*. Rare, but likely to become common; in many districts farther east, "a most troublesome weed, extremely difficult to eradicate."

ONOPORDON, Vaill. COTTON THISTLE. SCOTCH THISTLE.**O. acanthium**, L. Cotton Thistle. Scotch Thistle.

Lake City, *Mrs. Ray*. Rare.

ARCTIUM, L. (LAPPA, Tourn.) BURDOCK.**A. Lappa**, L. (*L. officinalis*, Allioni, var. *major*, Gray.) Common Burdock.

Common through the south half of the state, and probably northeastward; less frequent in the *Red river valley*.

CICHORIUM, Tourn. SUCCORY. CHICORY.*C. Intybus*, L. *Succory. Chicory.*Minneapolis, *Herrick*; near Excelsior, Hennepin county, *Mrs. Terry*. Rare.**KRIGIA**, Schreber. (Including **CYNTHIA**, Don.) KRIGIA.**K. Virginica**, Willd. Dwarf Dandelion.Upper Mississippi river, *Garrison*. Rare.**K. amplexicaulis**, Nutt. (*Cynthia Virginica*, Don.) Cynthia.Common, or frequent, through the south half of the state; extending north at least to Morrison county (common), *Upham*, and the upper Mississippi river *Garrison*.**TROXIMON**, Nutt. TROXIMON.**T. cuspidatum**, Pursh. Troximon.Common, or frequent, through the south and west portions of the state; extending northeast to lake Pepin, *Miss Manning*, Minneapolis, *Twining*, *Roberts*, Stearns county, *Campbell*, and *Pembina*, *Chickering*.**T. glaucum**, Nutt.* Troximon.Red river prairie, *Dawson*, *Havard*; near *Glyndon*, *Leiberg*, *Gedge*; *Kittson*, *Stevens* and *Lincoln* counties, *Upham*. West. [*T. aurantiacum*, *Hook.*, has been reported, but probably erroneously, at *Pembina*.]**TRAGOPOGON**, L. GOAT'S-BEARD. VEGETABLE OYSTER.*T. pratensis*, L.† *Yellow Goat's-Beard.*Naturalized in meadow of Spring creek near Red Wing, *Sandberg*.**HIERACIUM**, Tourn. HAWKWEED.**H. umbellatum**, L.‡ Hawkweed.North shore of lake Superior to the Rocky mountains and northward, *Gray's Synoptical Flora of N. A.*; probably in northern Minnesota.

* **TROXIMON GLAUCUM**, Nutt. Usually a foot or two high, rather stout, pale or glaucous, either glabrous or with loose pubescence: leaves linear to lanceolate, from entire to sparingly dentate or sometimes laciniate, 4 to 12 inches long: involucre commonly an inch high and many-flowered: its bracts lanceolate or broader; outer series shorter, often pubescent, or even villous: akenes with apex tapering gradually into a rather stout and nerved beak which is shorter than the body; akenes with the beak 5 or 6 lines long, longer than the pappus, the copious and rather rigid bristles of which are (as in most species) only denticulate-scabrous. *Gray's Synoptical Flora of N. A.*

† **TRAGOPOGON**, L. Involucre simple, of many leaves; receptacle naked; pappus plumous, achenia longitudinally striae, contracted into a long, filiform beak. Biennial European herbs, with long, linear, grass-like leaves. *Wood's Class-Book*.

T. pratensis, L. Leaves linear, those of the stem dilated at the base and abruptly acuminate into a slender point towards the apex, glabrous. Peduncles scarcely thickened beneath the anthodes [heads]. Florets yellow. Achenes with the beak about as long as the achene, ribbed; those of the outer florets usually muricate on the ribs. Pappus of all the florets of plumose hairs. *Sowerby's English Botany*, vol. v.

‡ **HIERACIUM UMBELLATUM**, L. Stem a foot or two high, strict, leafy to the top, bearing a few somewhat umbellately disposed heads: leaves narrowly or sometimes broadly lanceolate, nearly entire, sparsely denticulate, occasionally laciniate-dentate, all narrow at base; the caudine leaves all closely sessile: involucre half inch high, or sometimes smaller, usually livid, glabrous or nearly so: outermost bracts loose or spreading. *Gray's Synoptical Flora of N. A.*

H. Canadense, Michx. Canada Hawkweed.

Common, or frequent, throughout the state; abundant north of lake Superior, *Roberts*.

H. scabrum, Michx. Rough Hawkweed.

St. Croix river, *Parry*; Saint Cloud, *Campbell*; Beaver Bay, *Roberts*; Pembina, *Chickering*. (A hawkweed agreeing with Gray's description of this species in bearing 40- to 50-flowered heads, but in other characters like *H. paniculatum*, grows in the Red river valley on moist prairie, *Upham*.)

H. longipilum, Torr. Long-bearded Hawkweed.

St. Croix river, *Parry*; Blue Earth county, *Leiberg*. Rare. South.

H. venosum, L. Rattlesnake-weed.

Red river prairie, *Dawson*, *Scott*. Infrequent.

PRENANTHES, Vaill. (Including *NABALUS*, Cass.) RATTLE-SNAKE-ROOT.**P. alba**, L. White Lettuce. Rattlesnake-root.

Common throughout the state.

P. serpentaria, Pursh.* (N. *albus*, Hook., var. *serpentaria*, Gray.) Rattlesnake-root.

Hennepin county, *Herrick*; Stearns county, *Campbell*. [Devil's lake, Dakota, *Geyer*.]

P. altissima, L. Tall White Lettuce.

Between lake Superior and the lake of the Woods, *Macoun*.

P. racemosa, Michx. Rattlesnake-root.

Frequent, or common, throughout the state.

P. aspera, Michx. Rattlesnake-root.

Frequent through the south half of the state; extending north to Stearns county, *Campbell*, and Douglas county, *Mrs. Terry*.

P. crepidinea, Michx. Rattlesnake-root.

Lake Benton, Lincoln county, *Upham*. Infrequent. South.

LYGODESMIA, Don. LYGODESMIA.**L. juncea**, Don. Lygodesmia.

Common southwestward, on sandy land; extending north and east to Muskoda, Clay county, and Sand Hill river, *Upham*, Pembina, *Havard*, Meeker county, *Campbell*, Minneapolis, *Roberts*, St. Croix river, *Swezey*, and Blue Earth county, *Leiberg*.

[*Crepis runcinata*, Torr. & Gray, whose eastern limit extends from the Saskatchewan region to Nebraska and Iowa (*Arthur*), and the nearly related *C. glauca*, Torr. & Gray, of similar range, seem likely to be found in western Minnesota.]

* **PRENANTHES SERPENTARIA**, Pursh. Commonly 2 feet high, glabrous or a little hirsute-pubescent: stem sometimes purple-spotted, rather stout: leaves diversely variable, assuming all the forms of the preceding species: inflorescence corymbosely thyrsoid-paniculate; the heads mostly glomerate at summit of ascending or spreading flowering-branches or peduncles: involucre green, rarely purplish-tinged, 8- to 12-flowered; flowers purplish, greenish white or ochroleucous: pappus sordid straw-color or whitish. . . . Open grounds, commonly in sandy or sterile soil. *Gray's Synoptical Flora of N. A.*

TARAXACUM, Haller. DANDELION.**T. officinale**, Weber. (T. Dens-leonis, Desf.) Common Dandelion.

Common, often abundant, throughout most of the state ; but less frequent near its west side. It seems to be quite absent from some districts westward, as Cottonwood county, *Holzinger*; and occurs rarely in the Red river valley near Saint Vincent, *Dawson*, *Havard*.

LACTUCA, Tourn. (Including **MULGEDIUM**, Cass.) LETTUCE.**L. Canadensis**, L. Wild Lettuce.

Frequent throughout the state.

L. hirsuta, Muhl. (L. Canadensis, L., var. *sanguinea*, Torr. & Gray.) Wild Lettuce.

Minneapolis, *Roberts*, *Upham*; frequent in Martin county and in Emmet county, Iowa, *Cratty*. South.

L. pulchella, DC. (Mulgedium pulchellum, Nutt.) False or Blue Lettuce.

Red river valley at Pembina, *Havard*, and near Moorhead, *Leiberg*; lake Carlos, Douglas county, *Mrs. Terry*; Minneapolis, *A. W. Jones*; Lake Benton and Polk county, *Upham*. North and west.

L. Floridana, Gærtn. (M. Floridanum, DC.) False or Blue Lettuce.
Lapham. Winona county, *Holzinger*; Minneapolis, *A. W. Jones*. South.**L. leucophæa**, Gray. (M. leucophæum, DC.) False or Blue Lettuce.
North of lake Superior, *Roberts*; lake of the Woods, *Dawson*; Pembina, *Havard*; Blue Earth county, *Leiberg*.**SONCHUS**, Tourn. SOW-THISTLE.**S. oleraceus**, L. Common Sow-Thistle.

Saint Paul, *Kelley*; Minneapolis, *Miss Butler*; Nicollet county, *Aiton*; New Ulm, *Juni*. Infrequent.

S. asper, Vill. Spiny-leaved Sow-Thistle.

More frequent than the preceding : observed at Grand Marais and Beaver Bay, on the north shore of lake Superior ; at Minneapolis ; and in Goodhue, Winona, Rice and Blue Earth counties.

S. arvensis, L. Field Sow-Thistle.
Anoka county, *Juni*. Infrequent.**LOBELIACEÆ**. LOBELIA FAMILY.**LOBELIA**, L. LOBELIA.**L. cardinalis**, L. Cardinal Flower.

Along the Mississippi river at Wabasha, *Gibson*, lake Pepin, *Miss Manning*, and Saint Paul, *Mrs. Terry*; and the St. Croix river at Marine Mills, Washington county, *Miss Cathcart*, and at St. Croix Falls, *Miss Field*.

L. siphilitica, L. Great Lobelia.

Common, or frequent, through the south half of the state ; extending north to the upper Mississippi river, *Garrison*, and the Red river valley, *Gedge*.

L. inflata, L. Indian Tobacco.

Lake St. Croix, *Parry*; St. Croix Falls, *Miss Field*; Blue Earth county, *Leiberg*. Infrequent.

L. spicata, Lam. Lobelia.

Common through the south half of the state and in the Red river valley; extending northeast to the upper Mississippi, *Houghton*.

L. Kalmii, L. Kalm's Lobelia.

Common through the north half of the state and south to Minneapolis, *Roberts, Upham*; rare southward, as in peat bogs in the Minnesota valley between Kasota and Mankato, *Leiberg*.

L. Dortmanna, L. Water Lobelia.

Isle Royale, Dr. A. B. Lyons; doubtless in Minnesota north of lake Superior.

CAMPANULACEÆ. CAMPANULA FAMILY.

CAMPANULA, Tourn. BELLFLOWER.

C. rotundifolia, L. Harebell. Bluebell.

Common throughout the state. A very pretty flower, plentiful in all our prairie region and along the shore of lake Superior; in the latter situation varying through intermediate forms to the var. *linifolia* of *Gray's Manual, Roberts*.

C. aparinoides, Pursh. Marsh Bellflower.

Common throughout the state. (In the vicinity of Mankato, a bellflower is reported by *Leiberg* as common in bogs, agreeing well with the description of this species, except in the large size of the flowers, which have the corolla $\frac{3}{4}$ to $\frac{5}{4}$ of an inch long, five times as long as the small calyx-lobes. The ordinary smaller-flowered form of this species has not been observed there. The large-flowered form has also been collected at Minneapolis.)

C. Americana, L. Tall Bellflower.

Frequent through the south part of the state; extending north to Douglas county, *Mrs. Terry*.

SPECULARIA, Heister. VENUS'S LOOKING-GLASS.

S. perfoliata, A. DC. Venus's Looking-Glass.

Lapham. Minneapolis, *Kassabe*; near Saint Paul, *Mrs. Terry*. Infrequent. South.

ERICACEÆ. HEATH FAMILY.

GAYLUSSACIA, HBK. HUCKLEBERRY. WHORTLEBERRY.

G. resinosa, Torr. & Gray. Common Black Huckleberry.

Frequent, often common, northeastward; extending west to Cass lake, *Schoolcraft*, and south to the falls of Kettle river, in section 15, T. 42, R. 20, *Upham*.

VACCINIUM, L. CRANBERRY. BLUEBERRY. BILBERRY.

V. Oxycoleus, L. Small Cranberry.

Common northward; extending west to the upper Mississippi river, *Garrison, Becker county, Gedge, and Fergus Falls, Leonard*; and south to Anoka county (plentiful), *Roberts*, and White Bear lake, Ramsey county, *Kelley*.

V. macrocarpon, Ait. Large American Cranberry.

Common through the north half of the state, excepting the Red river valley and near the shore of lake Superior; extending south to Fergus Falls, *Leonard*, and Minneapolis, *Roberts*. Much gathered for the market, especially by the Chippewa Indians.

V. Vitis-Idaea, L. Cowberry.

North shore of lake Superior (swamps at Port Arthur), *Macoun*; doubtless in Minnesota.

V. stamineum, L. Deerberry. Squaw Huckleberry.

Near Saint Paul, *Mrs. Terry*. Rare.

V. uliginosum, L. Bog Bilberry.

North of lake Superior, *Juni*. North.

V. cæspitosum, Michx., var. **cuneifolium**, Nutt. Bilberry.

Margins of a lake near Stillwater, *Parry*. Rare. North.

[*V. ovalifolium*, Smith, and *V. myrtilloides*, Hook., will doubtless be found in Minnesota north of lake Superior.]

V. Pennsylvanicum, Lam. Dwarf or Low Blueberry.

Common in the north half of the state; extending south to Minneapolis, *Roberts*, and lake Pepin, *Miss Manning*, the Mississippi river being its southwestern limit from Minneapolis to Morrison county, *Upsham*.

V. Canadense, Kalm. Canada Blueberry.

Falls of the St. Croix river, *Parry*; Stearns county, *Garrison*; and northward.

V. corymbosum, L. Swamp or High Blueberry.

Lapham. Ramsey county (var. *amœnum*, Gray), *Winchell*; White Earth reservation, *Garrison*. Rare.

CHIOGENES, Salisb. CREEPING SNOWBERRY.**C. hispida**, Torr. & Gray. Creeping Snowberry.

Frequent northeastward; extending south to Anoka county (plentiful in tamarack swamps), *Roberts*; Hennepin county, *Simmons*.

ARCTOSTAPHYLOS, Adans. BEARBERRY.**A. Uva-ursi**, Spreng. Bearberry. Kinnikinnick.

Common, often abundant, on sandy land through the north half of the state; extending south to Isanti and Sherburne counties (common), *Upsham*; rare and local farther south, as in Goodhue county, *Sandberg*, at lake Pepin, *Miss Manning*, and on sandy knolls in section 12, Saratoga, Winona county, *Winchell*.

EPIGAEA, L. MAYFLOWER. TRAILING ARBUTUS. GROUND LAUREL.**E. repens**, L. Mayflower. Trailing Arbutus. Ground Laurel.

Minnesota Point and elsewhere near Duluth, *Juni*, *Miss Cathcart*; falls of Kettle river, *Upsham*. Infrequent. Northeast.

GAULTHERIA, Kalm. AROMATIC WINTERGREEN.**G. procumbens**, L. Aromatic Wintergreen. Checkerberry.

Common northeastward; extending west and south to Rainy Lake river, *Keating*, the lake of the Woods, *Dawson*, Wadena county, *Upsham*, and Anoka county, *Roberts*, rare farther southeast, as at lake Pepin, *Miss Manning*, and Mound Prairie, Houston county, *Winchell*.

CASSANDRA, Don. LEATHER-LEAF.**C. calyculata**, Don. Leather-Leaf.

North of lake Superior (common), *Roberts*; lake of the Woods, *Dawson*; St. Croix river, *Parry*; extending south to Wadena (frequent) and Chisago counties, *Upsham*, Minneapolis, *Kassabe*, and Stillwater, *Miss Field*.

CASSIOPE, Don. CASSIOPE.**C. hypnoides, Don.** Cassiope.Minnesota Point, lake Superior, *Miss Cathcart*. Rare. North.**ANDROMEDA, L.** ANDROMEDA.**A. polifolia, L.** Wild Rosemary.Plentiful near Grand Marais, and in swamps near lake Johanna, Ramsey county, *Roberts*; Minnesota Point, *Miss Cathcart*; lake of the Woods, and thence toward Red river, *Dawson*; St. Croix river, *Parry*; Chisago county, etc., *Upham*; near Minneapolis, *Kassabe*. North.**KALMIA, L.** AMERICAN LAUREL.**K. glauca, Ait.** Pale Laurel.Certainly to be found in northern Minnesota, *Macoun*.**MENZIESIA, Smith.** MENZIESIA.**M. glabella, Gray.*** Menziesia.Minnesota Point, lake Superior, *Miss Cathcart*. (The Botany of California states that this [called *M. ferruginea*] extends east "nearly to the upper Great lakes.") Rare. Northwest.**LEDUM, L.** LABRADOR TEA.**L. latifolium, Ait.** Labrador Tea.Common, often abundant, through the north half of the state; extending south to Sherburne and Anoka counties (common), *Roberts*, and near Saint Paul, *Mrs. Terry*. Used as tea by the Chippewa Indians.**PYROLA, Tourn.** WINTERGREEN. SHIN-LEAF. PYROLA.**P. rotundifolia, L.** Wintergreen. Shin-leaf.Common through the north half of the state; extending south to Minneapolis (common), *Roberts*, and rare farther south, as at Cannon River Falls, *Blake*, *Sandberg*, and Chatfield, Fillmore county, *Winchell*.**P. rotundifolia, L., var. *incarnata*, DC.** Wintergreen.Detroit, Becker county, *Gedge*. North.**P. rotundifolia, L., var. *asarifolia*, Hook.** Wintergreen.St. Croix Falls, *Miss Field*; Saint Cloud, *Garrison*. [Lake Superior, *Whitney*.] North.**P. rotundifolia, L., var. *uliginosa*, Gray.** Wintergreen.Minneapolis (frequent), *Roberts*, *Winchell*; Morrison county (on dryish land in woods), *Upham*.**P. elliptica, Nutt.** Wintergreen. Shin-leaf.

Common, or frequent, throughout the state.

* *MENZIESIA GLABELLA*, Gray. Strigose-chaffy scales wanting, or very few on young petioles and midrib beneath; leaves obovate, mostly obtuse, barely mucronate-tipped, glaucous and glabrous or nearly so beneath (an inch or two long), sprinkled with some small appressed hairs above, the obscurely serrulate margins minutely ciliate: pedicels naked or somewhat glandular: corolla ovoid-campanulate. *Gray's Synoptical Flora of N. A.*

P. chlorantha, Swartz. Wintergreen. Shin-leaf.

Common, or frequent, through the north half of the state; extending south to Isanti county, *Upham*.

P. secunda, L. Wintergreen. Shin-leaf.

Common northward; extending south to the St. Croix river, *Parry*, Goodhue county, *Sandberg*, lake Pepin, *Miss Manning*, Blue Earth county, *Leiberg*, and Redwood Falls, *Pemberton*.

P. secunda, L., var. **pumila**, Paine. Wintergreen. Shin-leaf.

North of lake Superior, *Juni*; in tamarack swamps near Minneapolis, *Roberts*. Rare. North.

P. minor, L. Wintergreen. Shin-leaf.

North of lake Superior (in woods at Kakabeka falls), *Macoun*; doubtless in northern Minnesota.

MONESES, Salisb. **MONESES**. ONE-FLOWERED PYROLA.**M. uniflora**, Gray. One-flowered Pyrola.

North of lake Superior (frequent), *Juni*, *Roberts*; Becker county, *Gedge*; Stearns county, *Campbell*. North.

CHIMAPHILA, Pursh. PIPSISSEWA. WINTERGREEN.**C. umbellata**, Nutt. Prince's Pine. Pipsissewa. Wintergreen.

Frequent northward; extending south to Wadena county, *Upham*, Saint Cloud, *Campbell*, and Anoka county (at Deer lake), *Roberts*; near Minneapolis, *W. H. Hatch*; rare and local farther southeast, as in Goodhue county, *Sandberg*, at lake Pepin, *Miss Manning*, and Hesper, Iowa, *Mrs. Carter*.

C. maculata, Pursh. Spotted Wintergreen.

Clearwater, Wright county, *Mrs. Terry*; Saint Paul, *Miss Cathcart*. Rare.

[*Pterospora andromedea*, Nutt., will probably be found in northern Minnesota.]

MONOTROPA, L. INDIAN PIPE. PINE-SAP.**M. uniflora**, L. Indian Pipe. Corpse-Plant.

Throughout the state: common, occasionally abundant, northward; infrequent or rare southward.

M. Hypopitys, L. Pine-sap. False Beech-drops.

Caribou Point and Carlton's Peak, north of lake Superior, also at Taylor's Falls, *Roberts*. Rare. North.

ILICINEÆ. (AQUIFOLIACEÆ) HOLLY FAMILY.

ILEX, L. HOLLY.**I. verticillata**, Gray. Black Alder. Winterberry.

St. Croix river, *Parry*; lake Pepin, *Miss Manning*; Saint Paul, *Kelley*; Minneapolis, *Winchell*; Stearns county, *Upham*; St. Louis river, *Mrs. Herrick*. North.

NEMOPANTHES, Raf. MOUNTAIN HOLLY.**N. Canadensis**, DC. Mountain Holly.

Lapham. St. Croix river, *Parry*; lake Pepin, *Miss Manning*. Infrequent. North.

PLANTAGINACEÆ. PLANTAIN FAMILY.

PLANTAGO, Tourn. PLANTAIN. RIBWORT.

P. major, L. Common Plantain. Wayside Plantain.

Common, often abundant, throughout the state. Evidently indigenous in Rock county, *Leiberg*, and in the Red river valley (where a form occurs, very probably the var. *Asiatica*, Decaisne, coarser than ordinary, with scape and spike from $1\frac{1}{2}$ to 2 feet high, the spike being 6 to 12 inches long), *Upham*. [Sheyenne river, Dakota, *Geyer*.]

P. Rugelii, Decaisne.* (*P. Kamtschatica*, Hook.) Plantain.

Blue Earth county (common), *Leiberg*; Martin county, *Cratty*. Perhaps frequent throughout the state, but overlooked on account of its resemblance to the preceding. (Indigenous; found only in America.)

[*P. cordata*, Lam., should be looked for in the east part of the state; and *P. lanceolata*, L., may be expected as a weed southeastward.]

P. eriopoda, Torr.† Plantain.

Red river valley, *Watson, Scott*. Northwest.

P. Patagonica, Jacq., var. *gnaphalioides*, Gray. Plantain.

Upper Minnesota river, *Parry*; New Ulm, *Juni*; Nicollet county, *Aiton*; Blue Earth county, *Leiberg*; common in Watab, Benton county, and frequent, often common, thence southwestward, *Upham*; plentiful at the Pipestone quarry (showing gradations in size to small matted plants with almost filiform scapes, none of which exceed two or three inches in height, bearing few-flowered capitate spikes $\frac{1}{8}$ to $\frac{1}{4}$ inch long), *Mrs. Bennett*, [Devil's lake, Dakota, *Geyer*.] South and west.

PRIMULACEÆ. PRIMROSE FAMILY.

PRIMULA, L. PRIMROSE. COWSLIP.

P. farinosa, L. Bird's-eye Primrose.

North shore of lake Superior, *Whitney, Macoun*; St. Croix lake, Stillwater, *Miss Field*. North.

P. Mistassinica, Michx. Primrose.

Lapham. Abundant on the north shore of lake Superior, *Juni, Roberts*. North.

ANDROSACE, Tourn. ANDROSACE.

A. occidentalis, Pursh. Androsace.

Blue Earth county (common), also a dwarfed form, about an inch high, with solitary

* *PLANTAGO RUGELII*, Decaisne. Leaves paler [than in *P. major*], commonly thinner: spikes long and thin, attenuate at the apex: sepals oblong, all as well as the similar bract acutely carinate: capsules erect in the spike, cylindraceous-oblong (somewhat over 2 lines long, one-sixteenth inch in diameter), about twice the length of the calyx, circumscissile much below the middle: ovules 6 to 10; seeds 4 to 9, oval-oblong (about a line long), opaque and dull brown, not reticulated. *Gray's Synoptical Flora of N. A.*

† *PLANTAGO ERIOPODA*, Torr. Perennial; leaves fleshy, broadly lanceolate, 4 to 6 inches long, 1 to 2 inches wide, attenuate at each end, long-petioled, glabrous, entire, 5-nerved; base of the leaves and scape clothed with long dense brown wool; scape 1 foot high, terete, glabrous or pubescent, with a cylindrical spike (3 to 6 inches long) of rather remote perfect flowers; bracts scarious-margined, ciliate; stamens and styles very long; bracts broadly ovate, mostly obtuse; capsules 4- to 5-seeded; seeds not hollowed. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

flowers, found near South Bend, in this county, *Leiberg*; Pipestone county, *Mrs. Bennett*; Sauk Rapids, *Mrs. Blatsdell*; Walhalla, northeastern Dakota, *Scott*. South and west.

DODECATHEON, L. AMERICAN COWSLIP.

D. Meadia, L. American Cowslip. Shooting Star. Pride of Ohio. *Lapham*. Winona, *Holzinger*, *Mrs. Terry*; Lake City, *Miss Manning*. Rare. South and west.

TRIENTALIS, L. STAR-FLOWER. CHICKWEED-WINTERGREEN.

T. Americana, Pursh. Star-flower. Chickweed-Wintergreen.

Common through the north half of the state, and south to Minneapolis, *Roberts*, and Saint Paul, *Miss Cathcart*; less frequent farther southeastward, as at lake Pepin, *Miss Manning*, Faribault, *Miss Beane*, and in Blue Earth county, *Leiberg*; absent southwestward.

LYSIMACHIA, Tourn. LOOSESTRIFE.

L. thrysiflora, L. Tufted Loosestrife. Frequent throughout the state.

L. stricta, Ait. Loosestrife.

Throughout the state; common northward, and south to Minneapolis; infrequent farther southward.

L. quadrifolia, L. Loosestrife.

Lapham. Dry, sandy ridges, St. Croix river, *Parry*; Lake City, *Mrs. Ray*. Rare. East.

STEIRONEMA, Raf. LOOSESTRIFE.

S. ciliatum, Raf. (*Lysimachia ciliata*, L.) Loosestrife. Common, or frequent, throughout the state.

S. lanceolatum, Gray, var. **hybridum**, Gray. (*L. lanceolata*, Walt., var. *hybrida*, Gray.) Loosestrife.

Common southward; extending north to Fergus Falls, *Leonard*, and the upper Mississippi river, *Garrison*.

S. longifolium, Gray. (*L. longifolia*, Pursh.) Loosestrife.

Frequent, often common, in the south half of the state and the Red river valley; extending northeast to the upper Mississippi river, *Garrison*.

GLAUX, Tourn. SEA-MILKWORT.

G. maritima, L. Sea-Milkwort.

Red river prairie (damp places in marshes), *Dawson*. [Between Sheyenne river and Devil's lake, Dakota, *Geyer*.] Northwest.

ANAGALLIS, Tourn. PIMPERNEL.

A. arvensis, L. *Pimpernel*. "Poor Man's Weather-glass." Martin county, *Gedge*. Rare.

CENTUNCULUS, Dill. CHAFFWEED.

C. minimus, L. Chaffweed. Pipestone quarry, *Mrs. Bennett*. Rare. Southwest.

[*Samolus Valerandi*, L., var. *Americanus*, Gray, will probably be found in Minnesota.]

LENTIBULACEÆ. BLADDERWORT FAMILY.

UTRICULARIA, L. BLADDERWORT.

U. vulgaris, L. Greater Bladderwort.

Frequent throughout the state. (It is sometimes nearly or quite destitute of air-bladders in Hennepin and Blue Earth counties.)

U. minor, L. Smaller Bladderwort.

Also frequent throughout the state.

U. intermedia, Hayne. Bladderwort.Throughout the state, but infrequent. Traverse des Sioux, Minnesota river, *Parry*; Blue Earth county, *Leiberg*; Minneapolis, *Roberts*. [Emmet county, Iowa (rare), *Cratty*; lake Superior, *Whitney*.]**U. cornuta**, Michx. Bladderwort.Isanti and Morrison counties, *Upham*; Minneapolis, *Simmons*.

PINGUICULA, Tourn. BUTTERWORT.

P. vulgaris, L. Butterwort.Common north of lake Superior, *Roberts*; Duluth, *Miss Cathcart*. North.

OROBANCHACEÆ. BROOM-RAPE FAMILY.

APHYLLON, Mitchell. NAKED BROOM-RAPE. CANCER-ROOT.

A. Ludovicianum, Gray. (*Phelipæa Ludoviciana*, Don.) Broom-rape. Traverse des Sioux, Nicollet county; "found in a singular isolated locality, rooting on an Indian grave." *Parry*. Rare.**A. uniflorum**, Gray. One-flowered Cancer-root.Minneapolis, *Kassube*; Minnehaha falls, *Roberts*; lake Pepin, *Miss Manning*. [Emmet county, Iowa, *Cratty*; lake Superior, *Whitney*.] Rare.**A. fasciculatum**, Gray. Naked Broom-rape. Cancer-root.Bare granite rocks, upper Minnesota river, *Parry*; Lake City, *Miss Manning*; Hesper, Iowa, *Mrs. Carter*. Rare.

SCROPHULARIACEÆ. FIGWORT FAMILY.

VERBASCUM, L. MULLEIN.

V. Thapsus, L. Common Mullein.

Common, or frequent, through the east half of the state; infrequent westward.

V. Blattaria, L. Moth Mullein.*Lapham*. Lake Pepin, *Miss Manning*. Rare.

LINARIA, Tourn. TOAD-FLAX.

L. Canadensis, Dumont. Wild Toad-Flax.Plentiful on the prairie about Sandy lake, close north of Minneapolis, *Roberts*; Alexandria, *Mrs. Terry*; upper Mississippi river, *Garrison*. Infrequent.

L. vulgaris, Mill. *Toad-Flax. Butter-and-eggs. Ramsted.*

Becoming a frequent weed, occasionally abundant: upper Mississippi river; Minneapolis; Goodhue, Wabasha, Nicollet and Blue Earth counties.

SCROPHULARIA, Tourn. **FIGWORT.**

S. nodosa, L., var. **Marilandica**, Gray. **Figwort.**

Common through the south half of the state; extending north to the upper Mississippi river.

[*Collinsia parviflora*, Dougl., will probably be found in northern Minnesota.]

CHELONE, L. **TURTLE-HEAD. SNAKE-HEAD.**

C. glabra, L. **Turtle-head. Snake-head. Shell-flower. Balmony.**

Common, or frequent, throughout the state, excepting perhaps southwestward.

PENTSTEMON, Mitchell. **BEARD TONGUE. PENTSTEMON.**

P. pubescens, Solander. **Beard-tongue. Pentstemon.**

Common, or frequent, through the southeast and central portions of the state and in the Red river valley, extending northeast to the upper Mississippi river, and to the lake of the Woods (rare), *Dawson*; apparently wanting in Blue Earth county and westward, *Leiberg*; but found in Pipestone county, *Mrs. Bennett*.

P. grandiflorus, Nutt. **Large-flowered Pentstemon.**

Common from lake Pepin, Saint Paul and Minneapolis, to the upper Mississippi river; and thence frequent westerly to Rock county, *Leiberg*, Pipestone county, *Mrs. Bennett*, and the Red river valley near Glyndon, *Gedge*.

P. acuminatus, Dougl.* **Beard-tongue. Pentstemon.**

Red river, *Watson* in *Bot. Rep. of King's Expl. of the Fortieth Parallel.* West.

MIMULUS, L. **MONKEY-FLOWER.**

M. ringens, L. **Monkey-flower.**

Common, or frequent, throughout the state. (In Blue Earth and Martin counties usually having the angles of the stem very decidedly winged, *Gedge*; so, too, at White Bear, Ramsey county, *Miss Field*.)

M. Jamesii, Torr. & Gray. **Monkey-flower.**

Throughout the state. Minneapolis (plentiful), Fort Snelling, Stillwater, and lake Pepin; Saint Cloud, and the upper Mississippi river; Beaver creek, Rock county, *Leiberg*.

GRATIOLA, L. **HEDGE-HYSSOP.**

G. Virginiana, L. **Hedge-Hyssop.**

Frequent, occasionally common, throughout the state, The most northern localities

* *PENTSTEMON ACUMINATUS*, Dougl. Glaucous, 6 to 20 inches high, generally stout and rigid, leafy: leaves coriaceous, somewhat cartilaginous-margined; radical and lowest cauline obovate or oblong; upper cauline from lanceolate to broadly ovate, or the upper cordate-clasping, these mostly acute or acuminate: thyrsus strict, interrupted, leafy below, naked above; the clusters several-flowered, and peduncles and pedicels mostly very short: sepals ovate and acute or lanceolate: corolla lilac or changing to violet; the limb half or two-thirds inch in diameter: sterile filament mostly bearded at the dilated tip: capsule firm-coriaceous and acuminate. *Gray's Synoptical Flora of N. A.*

reported are the St. Louis river, *Mrs. Herrick*, and the Red river (in an open swamp), *Dawson*, who mentions also a variety of this species near Saint Vincent.

[A form which seems to be a distinct variety, or perhaps a species hitherto undescribed, differing much from the ordinary type of *G. Virginiana*, is reported by *Mr. Leiberg*, with the following description: "Sterile filaments conspicuously tipped with a head; plant rather robust, 8 to 12 inches high, very smooth when dried, but in the growing state covered with a clammy exudation; lower leaves lanceolate, entire, short (half an inch long); upper leaves somewhat clasping, conspicuously 3- to 5-nerved, ovate or broadly lanceolate, acute, mostly sharply toothed, from an inch to one and a half inches long; pedicels mostly longer than the leaves; bractlets under the calyx two, lanceolate, entire or slightly toothed, 5 to 6 lines long, 1 to 1½ lines wide, twice as long and about three times as wide as the sepals; corolla yellowish white, a half inch in length.—Abundant in peaty bogs, Nicollet county. June."]

ILYSANTHES, Raf. FALSE PIMPERNEL.

I. gratioloides, Benth. False Pimpernel.

Fort Snelling, *Roberts*; Blue Earth county (common), *Leiberg*; Emmet county, Iowa (rare), *Cratty*. South.

SYNTHYRIS, Benth. SYNTHYRIS.

S. Houghtoniana, Benth. Synthyris.

Stillwater, *Parry*; Cannon River Falls, *Blake*, *Sandberg*; near Saint Paul, *Roberts*; Chisago and Morrison counties (in the latter common north of Little Falls), *Upham*.

VERONICA, L. SPEEDWELL.

V. Virginica, L. Culver's Physic.

Common through the south half of the state and in the Red river valley; extending northeast to the upper Mississippi river.

V. Anagallis, L. Water Speedwell.

Frequent through the south half of the state and in the Red river valley.

V. Americana, Schwein. American Brooklime.

Frequent throughout the state.

V. scutellata, L. Marsh Speedwell.

Throughout the state, but infrequent. Bogs, upper Mississippi river, *Parry*; St. Louis river, *Mrs. Herrick*; Minneapolis, *Juni*, *Kassabe*. [Devil's lake, Dakota, *Geyer*.]

[*V. serpyllifolia*, L., doubtless occurs in this state, but has been overlooked.]

V. peregrina, L. Neckweed. Purslane Speedwell.

Frequent, or common, throughout the state.

V. arvensis, L. Corn Speedwell.

Duluth, *Juni*; Hesper, Iowa, *Mrs. Carter*. Infrequent.

BUCHNERA, L. BLUE-HEARTS.

B. Americana, L. Blue-Heart.

Wabasha, *Gibson*. Rare. Southeast.

GERARDIA, L. GERARDIA.

G. purpurea, L. Purple Gerardia.

Common through the south half of the state; less frequent northward, as at the lake of the Woods, *Dawson*, and in the Red river valley, *Scott*, *Havard*.

G. purpurea, L., var. paupercula, Gray.* Purple Gerardia.

Lower Canada to Saskatchewan, and southward from coast of New England to Penn., N. Illinois and Wisconsin, *Gray's Synoptical Flora of N. A.*; apparently the prevailing form of this species in Minnesota.

G. aspera, Dougl. Purple Gerardia.

Common through the west half of the state, abundant in the Red river valley; extending east to lake Pepin, *Miss Manning*.

G. tenuifolia, Vahl. Slender Gerardia.

Common, or frequent, through the south half of the state; also found in the Red river valley, *Scott*, and at Devil's lake, Dakota, *Geyer*; extending northeast to the upper Mississippi river, *Garrison*.

G. tenuifolia, Vahl., var. asperula, Gray.† Slender Gerardia.

Collected by *T. J. Hale*, near the St. Croix river, and in Fillmore county.

G. Skinneriana, Wood. (*G. setacea*, *Gray's Manual.*) Gerardia.

Lapham. Upper Mississippi river, *Garrison*. Rare. South.

G. quercifolia, Pursh. Smooth False Foxglove.

Lapham. Rare. South.

G. grandiflora, Benth. False Foxglove.

Nicollet county, Aiton; Saint Paul, Miss Cathcart. South.

G. pedicularia, L. Lousewort Foxglove.

Lapham. Minneapolis, *Roberts*; White Bear lake, Ramsey county, *Kelley*; lake Pepin, *Miss Manning*. Southeast.

G. auriculata, Michx. Gerardia.

Blue Earth county, *Leiberg*; Nicollet county, *Aiton*; New Ulm, *Juni*; frequent in Martin county, and in Emmet county, Iowa, *Cratty*. South.

CASTILLEIA, Mutis. PAINTED-CUP.**C. coccinea, Spreng.** Scarlet Painted-Cup. Indian Pink. "Bloody Warrior."

Common, often abundant, throughout the wooded portion of the state; less so in the prairie region; rare from Blue Earth county westward, *Leiberg*. Nearly all yellow, at least in some years, upon districts ten to twenty miles in extent, as was observed in Washington and Ramsey counties; elsewhere scarlet, with occasional yellow specimens intermixed.

C. pallida, Kunth, var. septentrionalis, Gray. Pale Painted-Cup.

Lapham. Fergus Falls, *Leonard*; Red river valley, *Scott*. [North of lake Superior, *Agassiz*.] Rare. North.

C. sessiliflora, Pursh. Pale Painted-Cup.

Frequent throughout the prairie portion of the state; extending northeast to the upper Mississippi river.

**GERARDIA PURPUREA*, L., var. *PAUPERCULA*, Gray. A span to a foot high, smoother: stem more simple or with stricter branches: pedicels mainly opposite: flowers decidedly smaller: corolla usually only half inch long, lighter rose-purple; calyx-teeth deltoid-subulate from a broad base, leaving comparatively narrower sinuses, sometimes over half the length of the tube. *Gray's Synoptical Flora of N. A.*

†*GERARDIA TENUIFOLIA*, Vahl., var. *ASPERULA*, Gray. Distinguished by Professor Gray, from the typical *G. tenuifolia*, as follows: Leaves all nearly filiform, the upper side hispidulo-scabrous or asperulous (in the manner of *G. aspera*): inflorescence more paniculate and with the pedicels all ascending: corolla small, the expanded limb only half an inch in diameter.—Dry and bare hills and bluffs, Missouri to Minnesota, Wisconsin and Michigan. *Botanical Gazette*, vol. iv, p. 153: May, 1879.

ORTHOCARPUS, Nutt. ORTHOCARPUS.**O. luteus**, Nutt.* Orthocarpus.

Lapham. North part of the Red river valley (Kittson county), *Upham*; Roseau prairie, *Scott*; *Pembina*, *Havard*. Northwest.

EUPHRASIA, Tourn. EYEBRIGHT.**E. officinalis**, L. Eyebright.

North shore of lake Superior; "abundant everywhere about the edges of mossy thickets, especially on the rocky 'peninsula' at Grand Marais; in bloom the last of July and during August; small and little branched in exposed situations, larger and much branched among other vegetation." *Roberts.* North.

RHINANTHUS, L. YELLOW RATTLE.**R. Crista-galli**, L. Yellow Rattle.

Lake Superior, *Gray's Manual*; doubtless in northeastern Minnesota (but probably not in the vicinity of Minneapolis, where it has been reported). North.

PEDICULARIS, Tourn. LOUSEWORT.**P. Canadensis**, L. Common Lousewort. Wood Betony.

Common, in many places abundant, throughout the state, excepting perhaps northeastward. Flowers all greenish yellow, with no tinge of purple, upon extensive districts.

P. lanceolata, Michx. Lousewort.

Frequent southeastward; common westward and in the Red river valley.

MELAMPYRUM, Tourn. COW-WHEAT.**M. Americanum**, Michx. Cow-Wheat.

Throughout the state; common or frequent northward, rare southward. Pine barrens, St. Croix river, *Parry*; Ramsey county, *Mrs. Terry*; north of lake Superior (common), *Juni*, *Roberts*; lake of the Woods, *Dawson*.

ACANTHACEÆ. ACANTHUS FAMILY.

RUELLIA, L. RUELLIA.**R. ciliosa**, Pursh. Ruellia.

Lake Pepin, *Miss Manning*. Rare. Southeast.

***ORTHOCARPUS**, Nutt. Calyx tubular-campanulate, 4-cleft, or cleft anteriorly and posteriorly and the divisions 2-cleft or parted. Corolla mostly with slender tube; upper lip (galea) little longer and usually much narrower than the inflated 1- to 3-saccate lower one. Stamens 4; the smaller anther-cell sometimes wanting —Low herbs, almost all annual (W. North American and one Chilian); with mainly alternate entire or 3- to 5-parted and laciniate leaves; the upper passing into bracts of the dense spike and not rarely colored, as also the calyx-lobes; the corolla yellow, or white with purple or rose-color, often much surpassing the calyx. Seeds numerous or rather few. Fl. spring and summer. §2. **TRUE ORTHOCARPUS**, Benth. Corolla with simply saccate lip inconspicuously or obsoletely 3-toothed, and moderately smaller ovate-triangular galea; its small tip or mucro usually somewhat inflexed or uncinate; stigma small, entire; anthers all 2-celled; seed-coat very loose, costate-reticulated; root annual.

O. LUTEUS, Nutt. Pubescent and hirsute, sometimes viscid; stem strict, a span to a foot high; leaves from linear to lanceolate, occasionally 3-cleft: bracts of the dense spike broader or with more dilated base, completely herbaceous, mostly 3-cleft, about equalling the flowers: corolla golden yellow, less than half inch long, twice or thrice the length of the calyx; tip of galea obtuse and straight. *Gray's Synoptical Flora of N.A.*

VERBENACEÆ. VERVAIN FAMILY.

VERBENA, Tourn. VERVAIN.**V. angustifolia**, Michx. Narrow-leaved Vervain.Stearns county, *Mrs. Blaisdell*; Goodhue county, *Sandberg*; lake Pepin, *Miss Manning*. Rare. Southeast.**V. hastata**, L. Blue Vervain.Common throughout the state, excepting far northward, where it is infrequent or rare, both in the Red river valley and about lake Superior; found at the lake of the Woods, *Dawson*.**V. urticæfolia**, L. White Vervain. Nettle-leaved Vervain.

Frequency and range like the last.

V. stricta, Vent. Hoary Vervain.Common, or frequent, on sandy land southward; extending north to the upper Mississippi river, *Houghton*.**V. officinalis**, L. European Vervain.Minneapolis, *Herrick*. Rare.**V. bracteosa**, Michx. Prostrate Vervain.Common through the south half of the state; extending north to the upper Mississippi river, *Houghton*, *Garrison*. (A probable hybrid between this species and *V. stricta* was found at Minneapolis in 1882. It was procumbent and much branched, much larger and coarser than *V. bracteosa*, covering a space about three feet in diameter; hirsute; leaves often 3- to 5-cleft; spikes clustered, loosely flowered; bracts inconspicuous, shorter than the calyx; flowers small, blue. *Upham*.)**LIPPIA**, L. LIPPIA.**L. lanceolata**, Michx. Fog-fruit.Lake Pepin, *Miss Manning*. Rare. Southeast.**PHRYMA**, L. LOPSEED.**P. Leptostachya**, L. Lopseed.Common, or frequent, through the south half of the state; extending north to Todd county, *Upham*, the upper Mississippi river, *Garrison*, and Fergus Falls, *Leonard*.

LABIATÆ. MINT FAMILY.

TEUCRIUM, L. GERMANDER.**T. Canadense**, L. American Germander. Wood Sage.Frequent, occasionally common, through the south half of the state and in the Red river valley to Pembina, *Havard*.**ISANTHUS**, Michx.**I. cæruleus**, Michx. False Pennyroyal.Lake City, *Mrs. Ray*; Blue Earth county, *Leiberg*. Minneapolis, *Winchell*, *Roberts*. South.**MENTHA**, Tourn. MINT.**M. viridis**, L. Spearmint.

Often cultivated, and occasionally spontaneous, escaping from gardens.

M. piperita, L. *Peppermint.*

Occurring like the last.

M. Canadensis, L. *Wild Mint.*

Common throughout the state.

LYCOPUS, Tourn. *WATER HOEHOUND.*

L. Virginicus, L. *Bugle-weed.*

Frequent, especially northward; common north of lake Superior, *Juni, Roberts.*

L. rubellus, Mœnch. (L. *Europæus*, L., var. *integrifolius*, Gray.) *Water Horehound.*

Minneapolis, *Twining, Herrick*; upper Mississippi river, *Garrison*; Baptism river, *Juni.*

L. lucidus, Turcz., var. **Americanus**, Gray.* *Water Horehound.*

Blue Earth county, *Leiberg*; Bear lakes, Murray county, *Upham*. *West.*

L. sinuatus, Ell. (L. *Europæus*, L., var. *sinuatus*, Gray.) *Water Horehound.*

Frequent, or common, throughout the state.

PYCNANTHEMUM, Michx. *MOUNTAIN MINT. BASIL.*

P. lanceolatum, Pursh. *Mountain Mint. Basil. "Pennyroyal."*

Common, in many districts abundant, on moist land throughout the prairie portion of the state.

P. linifolium, Pursh. *Mountain Mint. Basil.*

Blue Earth county, *Leiberg*. *South.*

CALAMINTHA, Tourn., Mœnch. *CALAMINT.*

C. Nuttallii, Benth. (C. *glabella*, Benth., var. *Nuttallii*, Gray.) *Calamint.*
Falls of St. Anthony, *Wood's Class-Book*. Infrequent. *East.*

C. Clinopodium, Benth. *Basil.*

Stearns county, *Garrison*. Infrequent.

HEDEOMA, Pers. *MOCK PENNYROYAL.*

H. pulegioides, Pers. *American Pennyroyal.*

Upper Mississippi river, *Garrison*; lake Pepin, *Miss Manning*. *Rare. South.*

H. hispida, Pursh. *Mock Pennyroyal.*

Common, or frequent, through the south half of the state; extending north to the upper Mississippi river, *Garrison*.

MONARDA, L. *HORSE-MINT.*

M. fistulosa, L. *Wild Bergamot.*

Throughout the state: frequent northeastward; common, often abundant, southward and in the Red river valley.

* *LYCOPUS LUCIDUS*, Turcz. Stem stout (2 to 3 feet high), erect, acute-angled at top; leaves lanceolate or oblong-lanceolate (2 to 4 inches long), acute or acuminate, with large and very sharp serrations, the base obtuse, or occasionally acute, subsessile; calyx-teeth alternate, subulate.—Var. *AMERICANUS*, Gray. Leaves barely shining on both sides, often hairy-pubescent; stem generally hairy; calyx-teeth small and rigid. *Gray's Revision of Lycopus, Proc. Amer. Acad.*, 1870.

M. punctata, L. Horse-Mint.

Upper Mississippi river, *Houghton*; Stearns county, *Mrs. Blaisdell*; Nicollet county, *Aiton*; lake Pepin, *Miss Manning*. Rare. Southeast.

BLEPHILIA, Raf. BLEPHILIA.**B. ciliata**, Raf. Blephilia.

Lapham. Rare. Southeast.

B. hirsuta, Benth. Blephilia.

Lapham. Infrequent. Southeast.

LOPHANTHUS, Benth. GIANT HYSSOP.**L. nepetoides**, Benth. Giant Hyssop.

Falls of the St. Croix, *Parry*; Lac qui Parle county, *Upham*. South.

L. scrophulariaefolius, Benth. Giant Hyssop.

Frequent southward; extending north to the upper Mississippi river, *Houghton*.

L. anisatus, Benth. Anise Hyssop.

Common, or frequent through the south half of the state; abundant in the Red river valley; extending northeast to the upper Mississippi, *Houghton*, and Rainy Lake river, *Keating*. "All three of the above species are found side by side at the Falls of the St. Croix," *Parry*.

NEPETA, L. CAT-MINT.**N. Cataria**, L. Catnip.

Frequent throughout the state.

N. Glechoma, Benth. Ground Ivy. Gill.

Occasionally adventive: Todd county, *Upham*; Minneapolis (frequent), *Roberts*; Mankato, *Leiberg*; Lake City, *Miss Manning*; Emmet county, Iowa (rare), *Cratty*.

DRACOCEPHALUM, Tourn. DRAGON-HEAD.**D. parviflorum**, Nutt. Dragon-head.

Throughout the state: frequent northward; rare southward.

PHYSOSTEGIA, Benth. FALSE DRAGON-HEAD. LION'S-HEART.**P. Virginiana**, Benth. False Dragon-head. Lion's-heart.

Frequent through the south half of the state and in the Red river valley; extending northeast to the upper Mississippi river, *Parry*.

BRUNELLA, Tourn. SELF-HEAL. HEAL-ALL.**B. vulgaris**, L. Self-heal. Heal-all.

Throughout the state: common northward; frequent southward.

SCUTELLARIA, L. SKULLCAP.**S. versicolor**, Nutt. Skulcap.

Lapham. Shore of lake Pepin, in Wisconsin, *Miss Manning*. South.

S. parvula, Michx. Skulcap.

Frequent through the south half of the state and north to the upper Mississippi river.

S. galericulata, L. Skulcap.

Common, or frequent, throughout the state.

S. lateriflora, L. Mad-dog Skulcap.

Commonness and range like the last.

MARRUBIUM, Tourn. HOREHOUND.**M. vulgare**, L. Horehound.

Lake Pepin, Miss Manning. Infrequent.

GALEOPSIS, L. HEMP-NETTLE.**G. Tetrahit**, L. Common Hemp-Nettle.

Abundant north of lake Superior; infrequent southward. *Mr. Roberts* describes it on the north shore of lake Superior as "very common, growing on the shingle especially; corolla almost universally white, marked with yellow in the throat; rarely purple."

STACHYS, Tourn. HEDGE-NETTLE. WOUNDWORT.**S. palustris**, L. Hedge-Nettle. Woundwort.

Abundant on moist ground and margins of sloughs throughout the state; in many districts southwestward persisting as a weed in wheat-fields. (The tube of the corolla is abruptly constricted on the front side near its base, and within at that point bears short white hair. Floral leaves small, but much exceeding the sessile calyx.)

S. aspera, Michx. (S. palustris, L., var. aspera, Gray.) Hedge-Nettle. Woundwort.

Common north of lake Superior at Little Marais and Palisades, *Roberts*; Pembina, *Chickering, Scott*; Stearns county, *Garrison*; Minneapolis, *Twining, Kassube*; Blue Earth county, *Leiberg*.

LEONURUS, L. MOTHERWORT.**L. Cardiaca**, L. Common Motherwort.

Becoming frequent southward: Minneapolis; Saint Paul; Stillwater; lake Pepin; Fillmore, Blue Earth and Martin counties.

LAMIUM, Tourn. DEAD-NETTLE.**L. amplexicaule**, L. Dead-Nettle.

Excelsior, near Minneapolis, *Mrs. Herrick*; probably also at Duluth. This is likely to become a frequent weed.

BORRAGINACEÆ. BORAGE FAMILY.

SYMPHYTUM, Tourn. COMFREY.**S. officinale**, L. Comfrey.

Escaped from cultivation: Minneapolis, *W. H. Hatch*; Goodhue county, *Sandberg*. Infrequent.

ONOSMODIUM, Michx. FALSE GROMWELL.**O. Carolinianum**, DC. False Gromwell.

Frequent, occasionally common, through the south half of the state

O. Carolinianum, DC., var. **molle**, Gray. (*O. molle*, Michx.) False Gromwell.

Winona county, Holzinger; Spring Valley, Fillmore county, Dr. W. E. Leonard; Scott county, Winchell; Nicollet county, Aiton; Blue Earth county, Leiberg; Fergus Falls, Dr. H. C. Leonard; Worthington (rare), Foote. South and west.

LITHOSPERMUM, Tourn. GROMWELL. PUCCOON.

[*L. arvense*, L., may be expected. It is reported in Michigan as a bad weed in wheat-fields.]

L. angustifolium, Michx. Narrow-leaved Gromwell.

Frequent southward and in the Red river valley; extending northeast to the upper Mississippi river. (The early-flowering state of this species, with the tube of the corolla much elongated, is described in Gray's *Manual* under the name *L. longiflorum*, Spreng.)

L. officinale, L. Common Gromwell.

Minneapolis, Roberts, Herrick; Brockway, Stearns county, Miss Campbell. Rare.

L. latifolium, Michx. Broad-leaved Gromwell.

Isanti county, Upham; Saint Paul, Miss Cathcart; near Meeker's island, Minneapolis, Kassabe; Chaska, Carver county, Juni; Blue Earth county, Leiberg; Martin county (rare), Cratty. South.

L. hirtum, Lehm. Hairy Puccoon.

Common, often abundant, on sandy land in the south half of the state; extending north at least to Fergus Falls, Leonard.

L. canescens, Lehm. Hairy Puccoon or Alkanet. "Indian Paint."

Abundant, or common, through the south half of the state, and in the Red river valley; extending northeast to the upper Mississippi river. The red juice of the root is used by the Indians to paint their faces and for other purposes in dyeing.

[For *L. longiflorum*, Spreng., see *L. angustifolium*, Michx., above.]

MERTENSIA, Roth. SMOOTH LUNGWORT.

M. Virginica, DC. Virginian Cowslip or Lungwort. "Blue Bells."

Lapham. Rochester, Olmsted county, Miss Beane; Le Roy, Mower county, Miss Bixby. Southeast.

M. paniculata, Don. Smooth Lungwort.

Common on the north shore of lake Superior, Juni, Roberts; St. Louis river, Mrs. Herrick, "The flower-buds pink, turning blue as they open, thus giving the flowering plant a showy, variegated appearance. Still blooming in August." Roberts.

MYOSOTIS, L. SCORPION-GRASS. FORGET-ME-NOT.

M. arvensis, Hoffm. Forget-me-not.

Minneapolis (quite surely this species), Herrick. Rare.

M. verna, Nutt. Forget-me-not.

Pipestone county, Mrs. Bennett. Rare.

ECHINOSPERMUM, Swartz. STICKSEED. BUR-SEED.

E. floribundum, Lehm.* Stickseed. Bur-seed.

Red river near Saint Vincent, Dawson. West.

***ECHINOSPERMUM FLORIBUNDUM**, Lehm. Rather strict, two feet or more high, or sometimes smaller: leaves from oblong- to linear-lanceolate; the lowest tapering into

E. deflexum, Lehm.* Stickseed. Bur-seed.
Red river valley at Pembina, *Havard*. Northwest.

E. Lappula, Lehm. Stickseed. Bur-seed. "Stick-tight."

Common, often abundant, through the south half of the state; less frequent in the Red river valley and the region of lake Superior (reported at Duluth, *Juni*, and in the vicinity of Saint Vincent, abundant, *Dawson*).

E. Redowskii, Lehm., var. **occidentale**, Watson. Stickseed. Bur-seed. "Stick-tight."

Frequency and range nearly like the last; but probably absent northeastward. (Procumbent and ascending, six to twelve inches high.)—The American plant is less strict, at length diffuse, and the tubercles or scabrosities of the nutlet are sharp instead of blunt or roundish, as in the Asiatic plant. *Gray's Synoptical Flora of N. A.*

E. Virginicum, Lehm. (*Cynoglossum Morrisoni*, DC.) Beggar's Lice.
Stickseed. Bur-seed. "Stick-tight."

Common, or frequent, through the south half of the state; rare or less frequent northward.

CYNOGLOSSUM, Tourn. HOUND'S-TONGUE.

C. officinale, L. *Hound's-Tongue*.

Becoming a frequent weed: lake Pepin, *Miss Manning*; Hastings, *Leonard*, and Mendota, Dakota county, *Kassube*; Nicollet county, *Aiton*; Jordan, Scott county, *Juni*; Stearns county, *Garrison, Campbell*.

C. Virginicum, L. Wild Comfrey.

Goodhue county, *Sandberg*; Stearns county, *Upham*; St. Louis river, *Mrs. Herrick*, East and north.

ASPERUGO, Tourn. GERMAN MUDWORT.

A. procumbens, L.† *German Mudwort*.

Adventive, but scarcely established, at Pipestone City, *Mrs. Bennett*. Rare.

margined petioles: racemes numerous, commonly geminate and in fruit rather strict: nutlets with elongated triangular back naked (2 lines long), merely scabrous; and the margin armed with a close row of flat subulate prickles, their bases often confluent; scar smaller and narrowly ovate. Limb of corolla varying from 2 to 5 lines in diameter. *Gray's Synoptical Flora of N. A.*

***ECHINOSPERMUM DEFLEXUM**, Lehm. Diffusely branched, a foot or so high: leaves from oblong to lanceolate: racemes lax, loosely paniculate: flowers soon sparse, smaller than in the preceding: nutlets smaller, and the mostly naked back (a line long) broader. Habit intermediate between the preceding and *E. Virginicum*, Lehm.; the American specimens having occasionally some few prickles developed from the rough-granulate dorsal face of the nutlets. Fruit as well as flowers about half the size of that of *E. floribundum*. *Gray's Synoptical Flora of N. A.*

†**ASPERUGO**, Tourn. Calyx when in flower nearly regular, deeply 5-cleft, in fruit 2-lobed, with the lobes valvate, closed, flattish, palmately laciniate, the one 6- and the other 7-toothed. Corolla funnelshaped-salvershaped; the throat closed by 5 obtuse scales; limb concave, 5-lobed. Stamens included. Nucules laterally compressed, nearly smooth with raised dots, attached by their narrow inner edge to the conical receptacle. A rough herb with fragile juicy stems, and small axillary purplish-blue flowers. Calyx much enlarged in fruit, somewhat like the perianth of the female flowers of the genus *Atriplex*.

A. procumbens, L. The only known species. Annual; stem 1 to 3 feet long, procumbent or trailing, succulent, brittle, angular, thinly studded with reflexed prickles,

HYDROPHYLLACEÆ. WATERLEAF FAMILY.

HYDROPHYLLUM, Tourn. WATERLEAF.**H. Virginicum**, L. Waterleaf.

Common, occasionally abundant, through the south half of the state; extending north at least to Morrison county (plentiful), *Upham*, and Clay county in the Red river valley, *Gedge*.

H. appendiculatum, Michx. Waterleaf.

Lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*. South.

ELLISIA, L. ELLISIA.**E. Nyctelea**, L. (Including the slender form, *E. ambigua*, Nutt., which prevails here.) Ellisia.

Frequent through the south half of the state and in the Red river valley.

PHACELIA, Juss. PHACELIA.**P. Purshii**, Buckley. Phacelia.

Gray's *Synoptical Flora of N. A.*; Goodhue county, *Sandberg*. Rare. Southeast.

P. Franklinii, Gray. Phacelia.

Shores of lake Superior, especially on Isle Royale, Gray's *Manual*; abundant at Port Arthur, *Macoun*; surely also in northern Minnesota.

POLEMONIACEÆ. POLEMONIUM FAMILY.

POLEMONIUM, Tourn. GREEK VALERIAN.**P. reptans**, L. Greek Valerian.

Hesper, Iowa, adjoining Fillmore county (common), *Mrs. Carter*; Winona, *Holzinger*; lake Pepin, *Miss Manning*; Cannon River Falls, *Blake*, *Sandberg*; extending northwest to New Ulm, *Leiberg*, and Alexandria, *Mrs. Terry*. Infrequent. Southeast.

PHLOX, L. PHLOX.**P. maculata**, L. Wild Sweet William.

Northfield, Rice county, *Chancy*; Dakota county, *Winchell*, *Upham*; Minneapolis, *Herrick*. South.

P. glaberrima, L. Phlox.

St. Croix Falls, *Miss Field*; New Ulm, *Juni*; upper Mississippi river, *Garrison*. Infrequent. South.

by which they readily adhere to the clothes of passers-by and to the coats of animals. Leaves ob lanceolate, sub obtuse, the lower ones narrowed into winged petioles and slightly decurrent, those on the upper part of the stem scarcely slacked, nearly opposite, or 3 or 4 in a whorl, more or less clothed with hairs, many of which are hooked-pointed. Peduncles very short, at first erect, afterwards recurved, 1-flowered. Corolla $\frac{1}{6}$ inch across, dull purplish blue. Calyx in fruit $\frac{1}{2}$ inch long, dorsally compressed, of 2 palmately laciniate valves, adpressed to each other, with a prominent network of veins, sparingly ciliated and clothed with bristly hairs. Nucules yellowish-gray, one-fifth inch long, thickly studded with smooth white scale-like patches, *Sowerby's English Botany*, vol. vii.

P. pilosa, L. Hairy Phlox.

Common throughout the prairie portion of the state ; extending northeast to the upper Mississippi river, *Houghton, Garrison.*

P. divaricata, L. Phlox.

Frequent, or common, southward ; extending north to Minneapolis (common), *Roberts*, and Redwood Falls, *Pemberton*. [The var. *Laphamii*, *Wood*, occurs at Minnehaha falls (plentiful), *Roberts*, and is also common at Hesper, *Iowa*, *Mrs. Carter.*]

COLLOMIA, Nutt. COLLOMIA.**C. linearis**, Nutt.* Collomia.

Pipestone county, *Mrs. Bennett.* [Upper Missouri river, *Geyer.*] West.

CONVOLVULACEÆ. CONVOLVULUS FAMILY.

CONVOLVULUS, L. BINDWEED.**C. sepium**, L. (*Ca'ystegia sepium*, R. Br.) Hedge Bindweed. Bracted Bindweed.

Common through the south half of the state and in the Red river valley ; extending northeast to the upper Mississippi river ; also, St. Louis river, *Mrs. Herrick*, and probably throughout Minnesota.

C. sepium, L., var. **repens**, Gray.† (var. *pubescens*, Gray, in *Manual.*) Clay county, in the Red river valley, *Gedge.***C. spithameus**, L. (*Calystegia spithamea*, Pursh.) Bracted Bindweed.

Throughout the state, but infrequent. Winona county, *Holzinger*; lake Pepin, *Miss Manning*; Dellwood, White Bear lake, Ramsey county, *Kelley*; near Minneapolis (rare), *Kasssue*; Stearns county, *Mrs. Blaisdell*; St. Louis river, *Mrs. Herrick*; Red river prairie (rare), *Dawson*; Pembina (in woods), *Chickering.*

CUSCUTA, Tourn. DODDER.**C. tenuiflora**, Engelm. Dodder.

Lapham. Blue Earth county, *Leiberg*, determined by *Watson.* South.

C. chlorocarpa, Engelm. Dodder.

Minneapolis, *Kasssue*; Blue Earth county, *Leiberg.* South.

**COLLOMIA*, Nutt. Corolla tubular-funnelform or salverform with a more or less dilated throat. Filaments slender, unequally inserted, usually protruded. Ovules solitary, few or many in each cell. Seed-coat developing mucilage and projecting numerous spiral threads (spiricles) when wetted (except in *C. gracilis*). Annuals or some biennials, with alternate leaves (or only the lower ones opposite), which are usually pinnately incised or divided, and with clustered or sometimes scattered flowers.

C. *LINEARIS*, Nutt. Annual, more or less viscid-pubescent, becoming glabrate below, glandular above ; stems erect, simple or branching, 6 to 18 inches high ; leaves sessile, lanceolate, very entire ; heads crowded ; lobes of the calyx triangular-lanceolate, acute ; corolla light blue or nearly white, 6 lines long, slender, but little enlarged at the throat, the limb small ; ovules solitary ; seeds with very numerous spiricles. *Porter and Coulter's Flora of Colorado*, and *Botany of King's Report*, following Gray's *Revision of N. A. Polemoniaceæ*, *Proc. Amer. Acad.*, 1870, vol. viii.

†*CONVOLVULUS SEPIUM*, L., var. *REPENS*, Gray. Corolla from almost white to rose-color : bracts from very obtuse to acute : herbage from minutely to tomentose-pubescent : sterile and sometimes flowering stems extensively prostrate : leaves more narrowly sagittate or cordate, the basal lobes commonly obtuse or rounded and entire. *Gray's Synoptical Flora of N. A.*

C. Gronovii, Willd. Dodder.

Common, or frequent, through the south half of the state and in the Red river valley.

C. Gronovii, Willd., var. **latiflora**, Engelm. Dodder.

Doubtless in this state; as it occurs at Hesper, in the north edge of Iowa (on *Impatiens fulva*), *Mrs. Carter, Arthur*. [A form with flowers of more delicate texture, and shorter tube and longer lobes to the corolla. *Gray's Synoptical Flora of N. A.*]

C. glomerata, Choisy. Dodder.

Frequent, or common, through the south part of the state; extending north to Stearns county, *Campbell*, and Redwood Falls, *Miss Butler*.

SOLANACEÆ. NIGHTSHADE FAMILY.

SOLANUM, Tourn. NIGHTSHADE.

S. Dulcamara, L. Bittersweet.

Stillwater, *Miss Field*; Lake City, *Mrs. Ray*. Infrequent.

S. nigrum, L. Common Nightshade. Black Nightshade.

Common through the south half of the state, especially southwestward, where the berries are often used for pies and sauce. Indigenous; also cosmopolitan.

PHYSALIS, L. GROUND CHERRY.

P. grandiflora, Hook. Ground Cherry.

Upper Mississippi river, *Garrison*; Stearns county, *Mrs. Blaisdell*; St. Louis river, *Mrs. Herrick*. North.

P. Philadelphica, Lam. Ground Cherry.

Lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*; Redwood Falls, *Pemberton*. South.

P. angulata, L. Ground Cherry.

Lapham. Minneapolis, *Twining, Simmons*. Rare. South.

P. pubescens, L. Ground Cherry.

Frequent, or common, in the south part of the state; extending west at least to Worthington, Nobles county (common), *Foote*, and north to New Ulm and Anoka county, *Juni*, and Stearns county, *Campbell*.

P. Virginiana, Mill. (*P. viscosa*, in *Gray's Manual.*) Ground Cherry.

Frequent southward; extending north to the upper Mississippi river. *Garrison*. [North of lake Superior, *Agassiz*; Pembina mountain, *Havard*.]

P. Virginiana, Mill., var. **ambigua**, Gray. Ground Cherry.

A coarse and very villous form with anthers violet!—Wisconsin (*Lapham*) to Saskatchewan, *Bourgeau, Drummond, &c.*, *Gray's Synoptical Flora of N. A.*; therefore doubtless in Minnesota.

P. lanceolata, Michx. (*P. Pennsylvanica*, in *Manual.*) Ground Cherry.

Common, or frequent, through the south half of the state and in the Red river valley; extending northeast to Itasca lake, *Houghton*.

NICANDRA, Adans. APPLE OF PERU.

N. physaloides, Gærtn. Apple of Peru.

Adventive, Minneapolis, *Williams, Roberts*. Infrequent.

LYCIUM, L. MATRIMONY-VINE.*L. vulgare*, Dunal. *Matrimony-Vine.*Adventive, Minneapolis, *Juni, Roberts.* Infrequent.**DATURA, L.** JAMESTOWN-WEED. THORN-APPLE.*D. Stramonium*, L. *Common Stramonium or Thorn-Apple.*Stearns county, *Campbell, Minneapolis, Roberts; Goodhue county, Sandberg; Blue Earth county, Leiberg.* Infrequent. South.*D. Tatula*, L. *Purple Thorn-Apple.*Saint Paul, *Miss Cathcart; Goodhue county, Sandberg; lake Pepin, Miss Manning.* Rare. South.**NICOTIANA, Tourn.** TOBACCO.*N. rustica*, L. *Wild Tobacco.*Near Clotho, Todd county, *Upham; "a relic of cultivation by the Indians."* Rare.**GENTIANACEÆ.** GENTIAN FAMILY.**HALENIA, Borkh.** SPURRED GENTIAN.**H. deflexa**, Griseb. Spurred Gentian.Common north of lake Superior, *Juni, Roberts; lake of the Woods, Dawson.* North.**GENTIANA, Tourn.** GENTIAN.**G. Amarella**, L., var. **acuta**, Hook. f.* Gentian.Red river valley near Saint Vincent, *Scott; determined by Watson.* Northwest.**G. quinqueflora**, Lam., var. **occidentalis**, Gray. Five-flowered Gentian.Frequent, or occasional, through the south part of the state; extending north to Saint Paul and White Bear lake, *Mrs. Terry, Stillwater, Miss Field*, and the upper Mississippi river, *Garrison.* [Common at Hesper, *Mrs. Carter*, and in Emmet county, Iowa, *Cratty.*]**G. crinita**, Freel. Fringed Gentian.

Common, or frequent, throughout the state.

G. serrata, Gunner. (G. *detonsa*, in *Manual.*) Smaller Fringed Gentian.

Also common throughout the state. This and the preceding grow together, and in many places are very abundant locally.

G. alba, Muhl. Whitish Gentian.Throughout the state, but infrequent. Hesper, *Mrs. Carter; Winona, Holzinger; Cannon River Falls, Blake, Sandberg; Faribault, Miss Beane; Saint Paul, Miss Cathcart;*

***GENTIANA AMARELLA**, L. From 2 to 20 inches high: leaves from lanceolate to narrowly oblong, or the lowest obovate-spatulate: inflorescence disposed to be racemiform: calyx 5-cleft (or rarely 4-cleft) below the middle; the lobes lanceolate or linear, equal or one or two of them longer, all shorter than the mostly blue corolla: the latter (funnelform, with entire lobes) half inch or more long; its lobes oblong, obtuse or becoming acute (with setaceous-fimbriate crown on their base): capsule sessile.—Var. **ACUTA**, Hook. f. Calyx almost 5-parted; crown usually of fewer and sometimes very few setæ. *Gray's Synoptical Flora of N. A.*

Minneapolis, *Roberts*; St. Croix Falls, *Miss Field*; New Ulm, *Juni*; Stearns county, *Campbell*; Roseau river, *Scott*.

G. Andrewssii, Griseb. Closed Gentian.

Frequent through the south half of the state and in the Red river valley; extending northeast to the upper Mississippi river, *Geyer*, *Garrison*.

G. Saponaria, L. Soapwort Gentian.

Lapham. Cannon river, *Geyer*; Anoka county, *Juni*; Pembina, *Havard*. Infrequent. South and west.

G. linearis, Frœl., var. *lanceolata*, Gray.* Gentian.

Minnesota and along Lake Superior, Gray's *Synoptical Flora of N. A.*; frequent on prairies, Blue Earth county, *Leiberg*.

G. puberula, Michx. Gentian.

Common, or frequent, through the south half of the state and in the Red river valley (common northward to Ada, Norman county, *Upham*, and infrequent to the vicinity of Saint Vincent, *Scott*).

G. affinis, Griseb.† Gentian.

Lapham. Red river, *Watson* in King's *Report*; near Saint Vincent, *Scott*, determined by *Watson*. West.

MENYANTHES, Tourn. BUCKBEAN.

M. trifoliata, L. Buckbean.

Common throughout the state.

LIMNANTHEMUM, Gmelin. FLOATING HEART.

L. lacunosum, Griseb. Floating Heart.

In a lake near Alexandria, Douglas county, *Mrs. Terry*. Rare.

APOCYNACEÆ. DOGBANE FAMILY.

APOCYNUM, Tourn. DOGBANE. INDIAN HEMP.

A. androsaemifolium, L. Spreading Dogbane.

Common throughout the state.

***GENTIANA LINEARIS**, Frœl. (G. *Saponaria*, L., var. *linearis*, Griseb.) Smooth throughout: stem slender and strict, a foot or two high: leaves linear or narrowly lanceolate, $1\frac{1}{2}$ to 3 inches long, 2 to 5 lines wide, and with somewhat narrowed base: flowers 1 to 5 in the terminal *involute* cluster, and often solitary in one or two axils below: calyx-lobes linear or lanceolate, shorter than the tube: corolla blue, an inch or more long, narrow-funnelform; the erect lobes roundish-ovate and obtuse, 2 lines long, a little longer than the triangular acute and entire or slightly 1- to 2-toothed appendages.—Var. *LANCEOLATA*. Leaves lanceolate, or the upper and involucrate ones almost ovate-lanceolate (1 or 2 inches long and even half inch wide): appendages of the sinuses of the corolla sometimes very short and broad. . . . Approaches narrow-leaved forms of *G. alba*. Gray's *Synoptical Flora of N. A.*

†**GENTIANA AFFINIS**, Griseb. Stems clustered, a span to a foot high, mostly ascending: leaves from oblong to lanceolate or linear: flowers from numerous and thyrsoid-racemose to few or rarely almost solitary: bracts lanceolate or linear: calyx-lobes linear or subulate, unequal and variable, the longest rarely equaling the tube, the shorter sometimes minute: corolla an inch or less long, rather narrowly funnel-form; its lobes ovate, acutish or mucronulate-pointed, spreading. Gray's *Synoptical Flora of N. A.*

A. cannabinum, L. Indian Hemp.

Also common throughout the state. (Polymorphous; the var. *glaberrimum*, DC., has been noted in Faribault county, *Upham*; and var. *hypericifolium*, Gray, at lake Minnetonka, *Roberts*, St. Louis river, *Mrs. Herrick*, and Pembina, *Havard*; var. *pubescens*, DC., probably also occurs here; but intermediate forms are found, "rendering useless any sub-specific names."

ASCLEPIADACEÆ. MILKWEED FAMILY.

ASCLEPIAS, L. MILKWEED. SILKWEED.**A. speciosa**, Torr.* Milkweed. Silkweed.

Red river valley, in Clay county (frequent on portions of the prairie which are intermediate between wet and dry), *Upham*; Big Stone county, *Campbell*, determined by Prof. Asa Gray; extending east to the central part of Minnesota, *Rev. E. L. Greene*, and Martin county, *Gedge*, *Leiberg*. [Frequent in Emmet county, Iowa (sometimes troublesome in grain-fields, like *A. Cornuti* elsewhere), *Cratty*.] West.

A. Cornuti, Decaisne. Common Milkweed or Silkweed.

Common throughout the state, excepting perhaps northeastward.

A. Sullivantii, Engelm. Sullivant's Milkweed.

Common, or frequent, across the south part of the state; extending north to Blue Earth county, *Gedge*, Brown county, *Juni*, wet prairies of central Minnesota, *Rev. E. L. Greene*, and in the Red river valley at least to Clay county (frequent), *Gedge*.

A. phytolaccoides, Pursh. Poke-Milkweed.

St. Croix river, *Parry*; lake Pepin, *Miss Manning*; Minneapolis, *Herrick*, *Hatch*; Stearns county, *Upham*; Detroit, Becker county, *Gedge*. Infrequent. South.

A. purpurascens, L. Purple Milkweed.

Lake Pepin, *Miss Manning*; Stillwater, *Miss Field*; Hennepin county, *Herrick*, *Hatch*; upper Mississippi river, *Garrison*. Infrequent. South.

A. ovalifolia, Decaisne. Milkweed.

Frequent throughout the prairie region of the state: common in Benton, Stearns and Todd counties (in oak openings and prairies), *Upham*; the most common species of this genus in the Red river valley, *Gedge*.

A. quadrifolia, L. Four-leaved Milkweed.

Shores of lake Pepin, both in Minnesota and Wisconsin, *Miss Manning*. Rare. South.

A. incarnata, L. Swamp Milkweed.

Common throughout the state.

A. incarnata, L., var. **pulchra**, Pers. Swamp Milkweed.

Minneapolis, *Kassube*.

*ASCLEPIAS SPECIOSA, Torr. Finely canescent-tomentose, rarely glabrate with age: leaves from subcordate-oval to oblong, thickish: peduncles shorter than the leaves: pedicels of the many-flowered dense umbel and the calyx densely tomentose: flowers purplish, large: corolla-lobes ovate-oblong, 4 or 5 lines long: hoods 5 or 6 lines long, spreading, the dilated body and its short inflexed horn not surpassing the anthers, but the center of its truncate summit abruptly produced into a lanceolate-ligulate thrice longer termination: column hardly any: wings of the anthers notched and obscurely corniculate at base.—Follicles echinate with soft spinous processes and densely tomentose, large (3 to 5 inches long) and ventricose, ovate and acuminate, arrect on deflexed pedicels: leaves large and broad, short-petioled, transversely veined: stems stout and simple, 2 to 5 feet high. *Gray's Synoptical Flora of N. A.*

A. obtusifolia, Michx. Milkweed.

Lapham. South.

A. tuberosa, L. Butterfly-weed. Pleurisy-root.

Common, or frequent, through the south half of the state; extending north to the upper Mississippi river, *Garrison*, and *Fergus Falls*, *Leonard*; not observed in Clay county, *Gedge*.

A. verticillata, L. Whorled Milkweed.

Frequent southeastward; extending north to *Otter Tail* county, *Upham*, Clay county (common), *Gedge*, and *Pembina*, *Chickering*.

ACERATES, Ell. GREEN MILKWEED.

A. viridiflora, Ell. Green Milkweed.

Occasional through the south half of the state and in the Red river valley.

A. viridiflora, Ell., var. *lanceolata*, Gray. Green Milkweed.

Blue Earth county (frequent), *Leiberg*; Clay county, Red river valley, *Gedge*. [With lanceolate leaves $2\frac{1}{2}$ to 4 inches long. *Gray's Synoptical Flora of N. A.*]

A. viridiflora, Ell., var. *linearis*, Gray. Green Milkweed.

Clay county, *Gedge*. West. [With elongated linear leaves and low stems: umbels often solitary.—Winnipeg Valley to New Mexico. *Gray's Synoptical Flora of N. A.*]

A. lanuginosa, Decaisne. Green Milkweed.

Winona county, *Holzinger*; Blue Earth county, *Leiberg*; Minneapolis, *Juni*, *Roberts*; Redwood Falls, *Pemberton*; Clay county, Red river valley, *Gedge*. (Specimens with some of the leaves having two equally prominent midribs and the end bifid were collected in Clay county by Prof. *Gedge*.) South and west.

A. longifolia, Ell. Green Milkweed.

Freeborn county, *Upham*; Cannon River Falls, *Blake*, *Sandberg*; frequent in Martin county, and in Emmet county, Iowa, *Cratty*; Stearns county, *Mrs. Blaisdell*; upper Mississippi river, *Garrison*. South.

OLEACEÆ. OLIVE FAMILY.

FRAXINUS, Tourn. ASH.

F. Americana, L. White Ash.

Frequent, often common, throughout the state, excepting far northward. The white and black ash are well known as valuable timber trees.

F. pubescens, Lam. Red Ash.

Frequent from lake Pepin, *Miss Manning*, to Stearns and Todd counties and Sand Hill river, *Upham*; the White Earth reservation, *Garrison*; reaching its northern limit on Rainy river, *Richardson*.

F. viridis, Michx. f. Green Ash.

Common, or frequent, throughout the state; extending north at least to Rainy river and the lake of the Woods, and common along the Red river in Manitoba, *Bell*; the most common species of ash in Iowa, *Arthur*.

F. sambucifolia, Lam. Black Ash.

Frequent, occasionally plentiful, throughout the state, excepting perhaps southwestward. [Its northwestern limit reaches the southern part of lake Winnipeg, and thence extends southward along the east side of Red river, *Bell*.]

F. quadrangulata, Michx. Blue Ash.

Upper Mississippi river, *Garrison*; near the Rainy lake valley, *Clark*. Rare.

ARISTOLOCHIACEÆ. BIRTHWORT FAMILY.

ASARUM, Tourn. ASARABACCA. WILD GINGER.**A. Canadense**, L. Asarabacca. Wild Ginger.

Common, or frequent, throughout the state.

ARISTOLOCHIA, Tourn. BIRTHWORT.**A. Sipho**, L'Her. Pipe-Vine. Dutchman's Pipe.

Fillmore, Houston and Ramsey counties, Winchell; Rice county, Sperry; lake Pepin, Miss Manning. Southeast.

NYCTAGINACEÆ. FOUR-O'CLOCK FAMILY.

OXYBAPHUS, Vahl. OXYBAPHUS.**O. nyctagineus**, Sweet. Oxybaphus.

Common, or frequent, through the south half of the state; extending north to the upper Mississippi river, Parry, Garrison, and Sand Hill river, Upham; also found at the lake of the Woods (sandy ridges of southern shore), Dawson.

O. hirsutus, Sweet. Oxybaphus.Frequent southward; extending north to Minneapolis and Big Stone lake, Upham, and to Pembina, Havard. South and west. [One foot high, hirsute throughout; leaves lanceolate, thick, the lower short-petioled; fruit of *O. nyctagineus*. *Botany of King's Expl. of the Fortieth Parallel.*]**O. angustifolius**, Sweet. Oxybaphus.Frequent through the south half of the state. Southwest. [One to six feet high, glabrous, except the peduncles and involucres; leaves linear. *Botany of King's Expl. of the Fortieth Parallel.* In all these species the fruit is pubescent, and the involucre always 3- to 5-flowered.]

PHYTOLACCACEÆ. POKEWEED FAMILY.

PHYTOLACCA, Tourn. POKEWEED.**P. decandra**, L. Garget, Poke. Scoke. Pigeon-Berry.

Throughout the south half of the state, but infrequent or rare. Blue Earth county, Leiberg; Minneapolis, A. W. Jones; upper Mississippi river, Garrison.

CHENOPODIACEÆ. GOOSEFOOT FAMILY.

CYCLOLOOMA, Moquin. WINGED PIGWEED.**C. platyphyllum**, Moquin. Winged Pigweed.

Beach at northwest side of Mille Lacs (plentiful), and north end of Long lake, Crow Wing county, Upham.

CHENOPODIUM, Tourn. (Including BLITUM, Tourn.) GOOSE-FOOT. PIGWEED.**C. album**, L. Lamb's-Quarters. Pigweed.

A common weed in waste and cultivated ground throughout the state.

C. Boscianum, Moquin.* (*C. album*, L., var. *Boscianum*, Gray, in *Manual.*)
Goosefoot.

Stony Point, lake Madison, Blue Earth county, *Gedge*. South.

C. urbicum, L. *Goosefoot.*

Red river valley at Pembina, *Havard*. Infrequent.

C. urbicum, L., var. *rhombifolium*, Moquin. *Goosefoot.*
Stillwater, *Miss Field*. Infrequent.

C. hybridum, L. *Maple-leaved Goosefoot.*

Frequent, often common, throughout the state.

C. Botrys, L. *Jerusalem Oak. Feather Geranium.*

Northeastward, *Clark*; Minneapolis, *Herrick*; Stillwater (plentiful), *Miss Butler*, *Miss Field*. Infrequent.

[*C. ambrosioides*, L., will probably extend to Minnesota.]

C. rubrum, L., var. **humile**, Watson. (*Blitum maritimum*, Nutt.)
Coast Blite.

Lapham. Northwest. [Var. *HUMILE*, Watson. Smaller, prostrate or ascending : leaves ovate to lanceolate, often hastate, an inch long or less, rarely toothed : flowers in axillary or somewhat spicate clusters. *Watson*, *Botany of California.*]

C. capitatum, Watson. (*Blitum capitatum*, L.) Strawberry Blite.

Stillwater, *Miss Field*; Stearns county, *Mrs. Blaisdell*; north of lake Superior, *Agassiz*; Carlton county, and Minnesota Point, lake Superior (juice of the fruit used by the Chippewa Indians for staining), *Roberts*. North.

C. Bonus-Henricus, L. (*Blitum Bonus-Henricus*, Reich.) *Good-King-Henry.*
Lake of the Woods, *Dawson*. Rare.

[*Atriplex patula*, L., var. *hastata*, Gray, and var. *littoralis*, Gray, will probably be found on the shore of lake Superior in Minnesota.]

CORISPERMUM, Ant. Jussieu. BUG-SEED.

C. hyssopifolium, L. Bug-seed.

Minnesota Point (plentiful), also near Minneapolis, *Roberts*; northwest beach of Mille Lacs (abundant), *Updham*; Red river, *Hooker*, *Watson*. Local.

SALICORNIA, Tourn. GLASSWORT. SAMPHIRE.

S. herbacea, L. Glasswort. Samphire.

In the vicinity of a salt spring on the bank of the Red river near Saint Vincent, *Say*, *Nuttall*. Rare.

SUÆDA, Forskal. SEA BLITE.

S. depressa, Watson.† Sea Blite.

Lapham Red river valley near Saint Vincent (common), *Updham*; Pembina, dry plains, *Chickering*. Northwest.

* *CHENOPODIUM BOSCIANUM*, Moquin. Erect, slender, 2 feet high, loosely branched, nearly glabrous; leaves thin, oblong to linear-lanceolate, 1 to 2 inches long, acute, attenuate into a long, slender petiole, the lower sinuate-dentate, or often all entire; flowers very small, solitary, or in small clusters upon the slender branchlets; calyx green, not strongly carinate, partly covering the at length naked seed, which is $\frac{1}{2}$ line broad. *Watson's Revision of Chenopodium*, *Proc. Am. Acad.*, vol. ix.

†*SUÆDA DEPRESSA*, Watson. Annual: low and mostly decumbent, branching from the base, with usually short ascending leafy branchlets: leaves linear, broadest at

AMARANTACEÆ. AMARANTH FAMILY.

AMARANTUS, Tourn. AMARANTH.

A. retroflexus, L. *Pigweed. Red-root.*

A common weed throughout the state.

A. albus, L. *Tumble-weed.*

Frequent southeastward and in the Red river valley ; abundant southwestward, on both the longest cultivated and the newly broken land. (North of lake Superior, *Agassiz*; "sandy shore of the upper Missouri" [probably there indigenous, and perhaps so in western Minnesota], *Geyer*.) The popular name alludes to the behavior of this plant in autumn and winter, as described by *Arthur*: "It grows in a globular form, often three or four feet in diameter. When killed by frost, the branches remain rigid, the plant soon loosens from the soil, and the wind drives it bounding over the fields and prairies, until brought up in some fence corner. When the corner is full, those that follow are enabled to scale the fence. With a change of wind, all the lodged plants are set flying in another direction. This is an effective method of scattering the seeds."—Prairie fires are sometimes carried by these rolling dead weeds across broad fire-breaks of plowed land.

A. blitoides, Watson.* Amaranth.

Mankato (a common weed by roadsides and in waste places), *Leiberg*; Martin county, and in Emmet county, Iowa, (rare), *Cratty*. South. "It grows flat upon the ground like purslane, and has a dark green, glossy leaf, not much larger than that of purslane, but thinner. It is a native of the western plains, but is traveling eastward as a weed. It is abundant in Iowa at Clear Lake and southward." *Arthur*.

ACNIDA, L. WATER-HEMP.

A. tuberculata, Moquin. (*Montelia tamariscina*, Gray, in part, and its var. *concatenata*, Gray.) Water-Hemp.

St. Croix river, *Parry*; common on gravelly shores of the Le Sueur and Minnesota rivers in Blue Earth county, *Leiberg*; also common in Martin county, and in Emmet county, Iowa, *Cratty*. "Sometimes erect, and from one to four feet high ; sometimes spreading or prostrate." South.

FRÆLICHIA, Mœnch. FRÆLICHIA.

F. Floridana, Moquin. Frœlicchia.

Lapham. Minneapolis, *Roberts*. Rare. South.

POLYGONACEÆ. BUCKWHEAT FAMILY.

POLYGONUM, L. KNOTWEED. POLYGONUM.

P. viviparum, L. Alpine Bistort.

Grand Marais, lake Superior, *Roberts*. North.

base, semiterete, $\frac{1}{4}$ to 1 inch long, the floral ones oblong- to ovate-lanceolate or ovate, acute, rather crowded : calyx cleft to the middle somewhat unequally, one or more of the acute lobes strongly carinate or crested : seed vertical or horizontal, half a line broad; very lightly reticulated. *Watson*, *Botany of California*.

*AMARANTUS BLITOIDES, Watson. Prostrate or decumbent, the slender stems becoming a foot or two long, glabrous or nearly so ; leaves broadly spatulate to narrowly oblanceolate, attenuate to a slender petiole, an inch long or usually less ; flowers in small contracted axillary spikelets ; bracts nearly a line broad. *Proc. Amer. Acad.* vol. xii.

P. orientale, L. *Prince's Feather*.

Lake Pepin, *Miss Manning*. Infrequent.

P. Pennsylvanicum, L. Knotweed. *Polygonum*.

Frequent, or common, through the south half of the state and in the Red river valley.

P. incarnatum, Ell. *Polygonum*.

Frequent, or common, through the south half of the state.

P. lapathifolium, Ait., var. **incanum**, Koch. *Polygonum*.

Minneapolis, *Roberts*; lake Pepin, *Miss Manning*. Rare. North.

P. Persicaria, L. *Lady's Thumb. Heartweed*.

Common throughout the state, excepting near its west side, where this and the two following species seem to be less frequent or rare.

P. Hydropiper, L. Common Smartweed or Water-pepper.

Common, often abundant, with range like the last.

P. acre, HBK. Water Smartweed.

Common, with same range.

P. hydropiperoides, Michx. Mild Water-pepper.

Frequent, or common, southward; also found at the lake of the Woods, *Dawson*, and in the Red river valley, *Scott*.

P. amphibium, L., var. **aquaticum**, Willd. *Polygonum*.

Frequent, often common, throughout the state.

P. Muhlenbergii, Watson.* (P. *amphibium*, var. *terrestre*, in *Manual*.)

Polygonum.

Common, or abundant, throughout the state.

P. Hartwrightii, Gray.† *Polygonum*.

Minneapolis (common), *Arthur*; Blue Earth county, *Leiberg*; Emmet county, Iowa (common), *Cratty*. Probably common, or frequent, throughout Minnesota.

P. Virginianum, L. *Polygonum*.

Lapham. St. Croix river, *Parry*; Blue Earth county, *Leiberg*. South.

P. articulatum, L. Jointweed.

Sandy barrens, St. Croix river, *Parry*; New Ulm, *Juni*; Minnesota Point, near Duluth (plentiful), *Roberts*. [Upper Missouri river, *Geyer*.]

P. aviculare, L. Knotgrass. Goose-grass. Door-weed.

Common throughout the state.

***POLYGONUM MUHLENBERGII**, Watson. Perennial, in muddy or dry places, often 2 or 3 feet high, scabrous with short appressed or glandular hairs, especially upon the leaves and upper stems; leaves thin, rather broadly lanceolate, long-acuminate, usually rounded or cordate at base, 4 to 7 inches long, on short stout petioles (½ to 1 inch long) from near the base of the naked sheath; flowers and fruit nearly as in *P. amphibium*, but spikes more elongated (1 to 3 inches long), often in pairs. *Proc. Amer. Acad.*, xiv.

†**POLYGONUM HARTWRIGHTII**, Gray. Strigose-hirsute or glabrous; stem erect, striate, bearing at the top thickish leaves which are broadly lanceolate, acute or somewhat obtuse; petioles short; sheaths long with a flat foliaceous limb, which is setose-ciliate; peduncle erect, eglandulose, bearing a solitary dense cylindrical spike of rose-colored flowers: stamens 5; style deeply cleft: perigonium eglandulose. *Proc. Amer. Acad.*, viii.

P. erectum, L. (P. *aviculare*, L., var. *erectum*, Roth.) Erect Knotgrass.

Also common, or frequent: Winona, Blue Earth, Hennepin and Stearns counties, etc.; Worthington (common), *Foote*; Crookston, Grand Forks, and elsewhere in the Red river valley (common), *Winchell*; Pembina, *Havard*.

P. ramosissimum, Michx. Polygonum.

Brown county, *Juni*; Martin county, and Emmet county, Iowa (common), *Cratty*; common from Jackson county westward and in the Red river valley, *Upham*. South and west.

P. tenué, Michx. Slender Knotgrass.

Lapham. Lake Pepin, *Miss Manning*; rocky hills, Mound, Rock county, *Leiberg*; lake of the Woods, *Dawson*. Rare. South and west.

P. arifolium, L. Halberd-leaved Tear-thumb.

Blue Earth county, *Gedge*. Infrequent.

P. sagittatum, L. Arrow-leaved Tear-thumb.

Common near Stewart river (north shore of lake Superior), and at Minneapolis, *Roberts*; Todd county, etc. (common), *Upham*; Stearns county, *Campbell*; Anoka county, also New Ulm, *Juni*.

P. Convolvulus, L. Black Bindweed.

Common, or frequent, throughout the state: troublesome in fields of grain by causing it, when beaten down by wind and rain, to remain so.

P. ciliinode, Michx. Polygonum.

Abundant north of lake Superior and in Carlton county, *Juni*, *Roberts*; upper Mississippi river, *Garrison*; Stearns county, *Mrs. Blaisdell*. North.

P. dumetorum, L., var. **scandens**, Gray. Climbing False Buckwheat.

Common, or frequent, throughout the state.

FAGOPYRUM, Tourn. BUCKWHEAT

F. esculentum, Moench. Buckwheat.

Occasionally adventive: Minneapolis, and Dakota, Nicollet and Blue Earth counties,

RUMEX, L. DOCK. SORREL.

R. longifolius, DC. Dock.

Hennepin county, *Herrick*. Infrequent. Northwest.

R. Britannica, L. (R. *orbiculatus*, Gray.) Great Water-Dock.

North of lake Superior (common near Stewart river), *Roberts*; St. Croix river, *Parry*; Isanti county, *Upham*; Stearns county, *Mrs. Blaisdell*; Anoka county, also New Ulm, *Juni*; White Bear lake, Ramsey county, *Kelley*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*.

R. altissimus, Wood. (R. *Britannica*, L., in *Manual*.) Pale Dock. Peach-leaved Dock.

Upper Mississippi river, *Garrison*; Minneapolis, *Kassabe*; Cannon River Falls, *Blake*, *Sandberg*; lake Pepin, *Miss Manning*; Winona county, *Holzinger*; Blue Earth county, *Leiberg*; Emmet county, Iowa (common), *Cratty*. South.

R. salicifolius, Weinman. White Dock.

Hennepin county, *Herrick*; Kittson county, *Upham*; Pembina, *Chickering*, *Havard*. [James river, Dakota, *Geyer*.]

R. verticillatus, L. Swamp Dock.

Upper Mississippi river *Garrison*; Isanti county, etc., *Upham*; West Saint Paul, *Miss Butler*; Blue Earth county, *Leiberg*; New Ulm, *Juni*.

R. crispus, L. *Curled Dock. Yellow Dock.*

Common, or frequent, throughout the state.

[*R. obtusifolius*, L., will doubtless extend to Minnesota.]

R. sanguineus, L. *Bloody-veined Dock.*

Chaska, Carver county, *Juni.* Rare

R. maritimus, L. *Golden Dock.*

Minneapolis, *Roberts, Upham*; Chaska, Carver county, *Juni*; Blue Earth county, *Leiberg*; Emmet county, Iowa, (rare), *Cratty*; Murray county, and the Red river valley, *Upham*; Pembina, *Havard*. South and west.

R. Acetosella, L. *Field or Sheep Sorrel. "Horse Sorrel."*

Common throughout the state; plentiful all along the north shore of lake Superior, *Roberts, Juni.*

THYMELEACEÆ. MEZEREUM FAMILY.

DIRCA, L. LEATHERWOOD. MOOSE-WOOD.

D. palustris, L. Leatherwood. Moose-wood.

Common northeastward, extending thus west to the lake of the Woods, *Richardson*, White Earth reservation, *Garrison*, and Detroit, *H. B. Ayres*, and south to the Kettle river, *Shumard*, southeastern Pine county, *Upham*, and St. Croix Falls, *Miss Field*; frequent, but local, farther south, as near Minneapolis, *Simmons*, Saint Paul, *Miss Cathcart*, Hastings, *Mrs. Ray*, Faribault, *Miss Beane*, Blue Earth county (common), *Leiberg*, New Ulm, *Juni*, and near the Great spring, Beaver creek, Caledonia, Houston county, *Winchell*.

ELÆAGNACEÆ. OLEASTER FAMILY.

SHEPHERDIA, Nutt. SHEPHERDIA.

S. Canadensis, Nutt. Canadian Shepherdia.

From lake Winnipeg to lake Superior, *Say, Schweinitz*; north shore of lake Superior, *Juni*; Minneapolis (rare), *Miss Butler*. North.

S. argentea, Nutt. Buffalo-Berry.

Bainy lake, *Say, Schweinitz*; upper Minnesota river, *Geyer*; near Walhalla, in northeastern Dakota, *Scott*. Northwest.

ELÆAGNUS, L. OLEASTER.

E. argentea, Pursh.* Silver-Berry.

Common from Ada northward in the Red river valley (forming patches ten to twenty rods long on the prairie, growing only about two feet high, fruiting plentifully; but in thickets becoming five to eight feet high), and local in section 5, Eldorado, Stevens county, *Upham*. Northwest.

**ELÆAGNUS*, L. Flowers perfect. Calyx-tube including the free ovary, the limb cylindric-campanulate or tubular below, parted above into 4 valvate deciduous lobes, colored within. Disk glandulose. Stamens 4, adnate to the calyx and alternate with its lobes, the free portion of the filaments very short; anthers oblong. Style simple, straight; stigma 1-sided. Fruit drupe-like, covered with the thickened dry or fleshy closed calyx-tube; the stone oblong, 8-striate.—Trees or shrubs, with alternate entire petioled leaves and axillary pedicelled flowers.

E. ARGENTEA, Pursh. A stoloniferous unarmed shrub, 6 to 12 feet high, the younger branches covered with ferruginous scales; leaves $1\frac{1}{2}$ to 4 inches long and $\frac{3}{4}$ to $2\frac{1}{2}$ inches

SANTALACEÆ. SANDALWOOD FAMILY.

COMANDRA, Nutt. BASTARD TOAD-FLAX.**C. pallida**, A. DC.* Bastard Toad-flax.Red river valley, *Scott*, determined by *Mr. Sereno Watson*. West.**C. umbellata**, Nutt. Bastard Toad-flax.

Common throughout the state.

C. livida, Richardson. Bastard Toad-flax.North shore of lake Superior, *Juni*; Stearns county, *Mrs. Blaisdell*. [Isle Royale (common), *Whitney*.] North.

SAURURACEÆ. LIZARD'S-TAIL FAMILY.

SAURURUS, L. LIZARD'S-TAIL.**S. cernuus**, L. Lizard's-tail.Upper Mississippi river, *Houghton*. Infrequent.

CERATOPHYLLACEÆ. HORNWORT FAMILY.

CERATOPHYLLUM, L. HORNWORT.**C. demersum**, L. Hornwort.White Bear lake, Ramsey county, *Kelley*; lake Calhoun, Minneapolis, *Upham*; small lakes at the Pipestone quarry (var. *commune*, *Gray*, with fruit about 3 lines long, tipped with the stout straight style also about 3 lines long, and with a similar short spine, 2 lines long, at the base on each side), *Mrs. Bennett*. Probably common throughout the state.

CALLITRICHACEÆ. WATER-STARWORT FAMILY.

CALLITRICHE, L. WATER-STARWORT.**C. verna**, L. Water-Starwort.Throughout the state. North of lake Superior (common), *Roberts*; Pembina, *Harvard*; Cottonwood county, *Upham*.[*C. autumnalis*, L., probably occurs also in northern Minnesota.]

wide, broadly or narrowly elliptic, rather acute at each end, or lanceolate and undulate, silvery-scurfy and more or less ferruginous; flowers numerous, deflexed, silvery without, pale yellow within, fragrant, 3 to 5 lines long, the tube broadly oval, the limb funnel-form; fruit [silvery in color, like the foliage] globose-ovoid, dry and mealy, edible, 4 or 5 lines in length. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

**COMANDRA PALLIDA*, A. DC. Stems several from a branched woody caudex, herbaceous, striate, erect, 6 to 10 inches high, branching above; leaves alternate, bluish, somewhat punctate on the margins, the lower elliptic oblong, mucronate-acute, 8 to 12 lines long and 2 to 3 lines wide, the uppermost usually linear-lanceolate, 5 to 10 lines long and about 1 line wide, sometimes so continued down the stem (forming var. *angustifolia*); cymes terminal, few-flowered; bracts linear-lanceolate, 2 lines long; flowers perfect; calyx-lobes erect-spreading; fruit 3 lines in diameter, with subfleshy epicarp.—Flowers precisely as in *C. umbellata*; distinguished especially by its narrowed upper leaves and much larger fruit. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

PODOSTEMACEÆ. RIVER-WEED FAMILY.

PODOSTEMON, Michx. RIVER-WEED.**P. ceratophyllum**, Michx. River-weed.Lake Pepin, *Miss Manning*. Rare.

EUPHORBIACEÆ. SPURGE FAMILY.

EUPHORBIA, L. SPURGE.**E. polygonifolia**, L. Shore Spurge.*Lapham*. Shore of lake Superior; lake Pepin, *Miss Manning*.**E. Geyeri**, Engelm. Geyer's Spurge.*Lapham, T. J. Hale*. Common at Minneapolis, *Upham, Simmons*.**E. serpyllifolia**, Pers. Thymé-leaved Spurge.Minneapolis, *Herrick*; Blue Earth county, *Leiberg*; Martin county, *Gedge*; New Ulm, *Juni*; Murray county, *Upham*; Stearns county, *Mrs. Blaisdell*; Pembina, *Havard*.**E. glyptosperma**, Engelm. Spurge.Minneapolis, *Herrick*; Saint Cloud, *Campbell*; Red river valley, *Scott*.**E. maculata**, L. Spotted Spurge.

Common through the south half of the state and perhaps northward.

E. humistrata, Engelm. Spurge.Minneapolis, *Roberts*; Winona county, *Holzinger*; Martin county, *Gedge*. South.**E. hypericifolia**, L. Spurge.Waste, dry places. St. Croix river, *Parry*; Minneapolis, *Roberts*; lake Pepin, *Miss Manning*; Winona county, *Holzinger*; Blue Earth county, *Leiberg*. South.**E. marginata**, Pursh. White-margined Spurge. "Mountain Snow."Frequent, often common, southwestward; extending northeast to Redwood Falls (found to be poisonous to the touch, even in mounting dried specimens), *Miss Butler*; in Lyon county becoming a common weed in cultivated fields, *Upham*.**E. corollata**, L. Flowering Spurge.

Frequent, often common, through the south half of the state.

E. heterophylla, L. Spurge.Spirit lake, Minnesota river, etc., *Geyer*; Blue Earth county, *Leiberg, Gedge*; Minneapolis, *Twining, A. W. Jones*; Goodhue county, *Sandberg*; lake Pepin, *Miss Manning*. South.**E. dictyosperma**, Fischer & Meyer. Spurge.Rock county, *Leiberg*. Southwest.**E. Cyparissias**, L. Garden Spurge.Adventive: Mankato, *Leiberg*; Goodhue county, *Sandberg*; lake Pepin, *Miss Manning*.[*E. commutata*, Engelm., should be looked for in this state.]**ACALYPHA**, L. THREE-SEEDED MERCURY.**A. Virginica**, L. Three-seeded Mercury.Minneapolis, *Roberts*; Blue Earth county, *Leiberg*; lake Pepin, *Miss Manning*.

EMPETRACEÆ. CROWBERRY FAMILY.

EMPETRUM, Tourn. CROWBERRY.

E. nigrum, L. Black Crowberry.North shore of lake Superior, *Macoun*; doubtless in northern Minnesota.

URTICACEÆ. NETTLE FAMILY.

ULMUS, L. ELM.**U. fulva**, Michx. Slippery or Red Elm.

Frequent, often common, throughout the state, excepting far northward. Well known for its mucilaginous, medicinal inner bark; the reddish wood, used for ox-yokes, posts, etc., is strong, light and durable.

U. Americana, L. White Elm. Amercian Elm. Water Elm.

Common throughout the state; but not found close to the shore of lake Superior. Wood tough, often used for axe-helves, whip-stocks, etc.; our most desirable tree for transplanting for ornament and shade. This and basswood are the most abundant trees in the Big Woods.

U. racemosa, Thomas. Corky White Elm. Rock Elm.Frequent, often common, eastward; extending west to Blue Earth county, *Leiberg*, Nicollet county, *Aiton*, New Ulm (common), *Juni*, and the upper Mississippi river, *Garrison*. Wood drier than the last and more valuable; much used by wheelwrights.**CELTIS**, Tourn. NETTLE-TREE. HACKBERRY.**C. occidentalis**, L. Sugarberry. Hackberry.Frequent through the south half of the state; rare and local northward, as at the east side of Mille Lacs and at lake Alexander, *Upham*; near lake Lida, Otter Tail county, *Frazee*; on the Red river in Clay county; at Red Lake Falls; on the upper Mississippi; and on the Big Fork of Rainy Lake river, in T. 149, R. 26, *Hinchellwood*. [Also at Eagle lake, north of Rainy lake, *Bell*, *Macoun*; and in northeastern Dakota, *Scott*.]**MORUS**, Tourn. MULBERRY.**M. rubra**, L. Red Mulberry.Big Woods, *Winchell*; Houston county, *J. S. Harris*. [West to Dakota, *Sargent*, and eastern Nebraska, *Aughey*.] Infrequent. South.**URTICA**, Tourn. NETTLE.**U. gracilis**, Ait. Tall Wild Nettle.

Common throughout the state.

U. dioica, L. Great Stinging Nettle.Upper Mississippi river, *Garrison*; lake Pepin, *Miss Manning*. Rare.**LAPORTEA**, Gaud. WOOD-NETTLE.**L. Canadensis**, Gaud. Wood-Nettle.Common through the south half of the state and in the Red river valley; extending northeast to the upper Mississippi river and Roseau river. "It is of this plant the Indians usually make their fishing lines, the rotted remains of the previous year's growth furnishing an abundant supply." *Parry*.

PILEA, Lindl. RICHWEED. CLEARWEED.**P. pumila**, Gray. Richweed. Clearweed.

St. Croix river, *Parry*; Minneapolis, *Simmons*; lake Minnetonka (common), *Roberts*; Blue Earth county, *Leiberg*; Fergus Falls, *Leonard*. South.

BCEHMERIA, Jacq. FALSE NETTLE.**B. cylindrica**, Willd. False Nettle.

Lapham. Fergus Falls, *Leonard*. Infrequent.

PARIETARIA, Tourn. PELLITORY.**P. Pensylvanica**, Muhl. Pellitory.

Minneapolis (presenting, besides the type, a larger and much branched form), *Herick*, *Simmons*; Blue Earth county, *Leiberg*; and northwest to the upper Missouri and Saskatchewan rivers. Infrequent. South and west.

CANNABIS, Tourn. HEMP.**C. sativa**, L. Hemp.

A common or frequent weed.

HUMULUS, L. HOP.**H. Lupulus**, L. Common Hop.

Common, especially northward; "native on all the tributaries of the upper Mississippi," *Parry*.

PLATANACEÆ. PLANE-TREE FAMILY.

PLATANUS, Tourn. PLANE-TREE. BUTTONWOOD.**P. occidentalis**, L. American Plane-tree. Buttonwood. Sycamore.

Lapham. Southeast, rare. The northwest limit of this species scarcely enters Minnesota.

JUGLANDACEÆ. WALNUT FAMILY.

JUGLANS, L. WALNUT.**J. cinerea**, L. Butternut. - Oil-nut. White Walnut.

Common southward, but absent far southwest; extending north to the Snake river in Pine and Kanabec counties, *Norwood*, *Upham*, and on the Mississippi river to the north line of Aitkin county, *Garrison*. Wood valuable for cabinet work and in house-building for inside finishing.

J. nigra, L. Black Walnut.

Frequent in the south part of the state; extending north to Nininger, Dakota county, southern Scott and Carver counties, and to Walnut Grove in the south edge of Redwood county. Because of the great value of its lumber, nearly all the black walnut of large size in this state has been cut; but much of young growth remains.

CARYA, Nutt. HICKORY.**C. alba**, Nutt. Shell-bark or Shag-bark Hickory. "Walnut."

Common, or frequent, in Houston county; extending north into Winona county at

least to Winona and Stockton, and west (rare) into Fillmore, Mower and Freeborn counties, to Moscow, *Winchell*; near Weaver and Kellogg, Wabasha county, and near Chatfield, on the south line of Olmsted county, *W. D. Hurlbut*. Southeast. "Timber very valuable, used wherever great durability, strength and elasticity are required."

C. porcina, Nutt. Pig-nut or Broom Hickory.

Lapham. Southeastward, extending north to Snake river, *Clark*; near lake Pepin on the Wisconsin side, *Mrs. Ray*.

C. amara, Nutt. Bitter-nut or Swamp Hickory.

Common, or frequent, southward; extending through the Big Woods, and north to Mille Lacs, and sparingly to the upper Mississippi river, and to Whiteface river, tributary to the St. Louis river. This species furnishes nearly all the hoop-poles for flour-barrels cut in the southern and central portions of the state.

CUPULIFERÆ. OAK FAMILY.

QUERCUS, L. OAK.

Q. alba, L. White-Oak.

Frequent, or common, in the southeast and central parts of the state; extending north to Fond du Lac, *Clark*, Savannah river, and Squagemaw lake, *Winchell*, and to Pokegema falls, Pemidji lake (plentiful in many places on the upper Mississippi river), and the White Earth reservation, *Garrison*. "Strong, durable, and beautiful timber."

Q. stellata, Wang. (Q. obtusiloba, Michx.) Post-Oak. Rough or Box White-Oak.

Upper Mississippi river, *Houghton*. Infrequent.

Q. macrocarpa, Michx. Bur-Oak. Over-cup or Mossy-cup White-Oak.

Common, or abundant, throughout the state, excepting far northeastward. Its northeastern limit north of lake Superior, according to *Bell*, is near the international boundary; but he states that it attains a good size on the Rainy river and thence westward. ("In going west, this species is first met with at the east end of Eagle lake" [north of Rainy lake], *Macoun*.) Timber valuable, similar to that of white oak.

Q. bicolor, Willd. Swamp White-Oak.

Frequent in Benton, Mille Lacs and Morrison counties, and thence north to lake Winnibigoshish and the White Earth reservation, *Garrison*.

Q. Muhlenbergii, Engelm. (Q. *Prinus*, L., var. *acuminata*, Michx.) Yellow Chestnut-Oak.

Lapham. Southeast.

Q. tinctoria, Bartram. (Q. *coccinea*, Wang., var. *tinctoria*, Gray.) Black Oak. Quercitron or Yellow-barked Oak.

Common, or abundant, southward; extending north to Pine county, *Upham*, and to Pokegama falls and the White Earth reservation, *Garrison*; the most abundant species of oak in the southeast part of the state. This species and the bur oak vary from 20 to 50 or 60 feet in height, according to their situation and soil; besides which, each occurs frequently dwarfed, growing as scrubby brush from 3 to 10 feet high.

Q. coccinea, Wang. Scarlet Oak.

Upper Mississippi river, *Garrison*; "in Minnesota (Engelmann)," *Sargent*.

Q. coccinea, Wang., var. *ambigua*, Gray. Gray Oak.

Prairie river, attaining a height of 50 feet and diameter of 10 inches, *Clark*; White Earth reservation, *Garrison*. North.

Q. rubra, L. Red Oak.

Occasional southward, and north to the upper Mississippi river, *Geyer, Garrison*; continuing on the north side of lake Superior to the Kaministiquia river, *Bell, Macoun*.

In autumn the leaves of the black and red oaks change to red and crimson colors; while the foliage of the white and bur oaks changes only to dull green, gray and brown. At the same time the leaves of the sumachs and red maple become red or scarlet; of the sugar maple, yellow; and of bass, box-elder, ash trees, elms, poplars, and cottonwood, various shades of brown and yellow.

Q. palustris, Du Roi. Swamp Spanish Oak. Pin Oak.

Lapham. Upper Mississippi river, *Garrison*.

[*Sargent* and *Bell* have mentioned Minnesota as a western limit of the American beech (*Fagus ferruginea*, Alt.), but it probably does not extend into this state.]

CORYLUS, Tourn. HAZEL-NUT. FILBERT.**C. Americana**, Walt. Common Wild Hazel-nut.

Common, in many districts abundant, throughout the state.

C. rostrata, Ait. Beaked Hazel-nut.

Common northward; extending south to Benton county and Spruce Hill, Douglas county, *Upham*; rare and local farther south, as on rocky bluffs in southeastern Winona county, *Winchell*. *Juni* says of this species north of lake Superior: "In some places the bushes reach a height of fifteen feet, with stems from one to one and a half inches in diameter. The tops bend over from the weight of the fruit."

OSTRYA, Micheli. HOP-HORNBEAM. IRON-WOOD.**O. Virginica**, Willd. American Hop-Hornbeam. Iron-wood. Lever-wood.

Common, often abundant, throughout the state; but not close to the shore of lake Superior.

CARPINUS, L. HORNBEAM. IRONWOOD.**C. Caroliniana**, Walt. (C. Americana, Michx.) American Hornbeam. Blue or Water Beech.

Common through the south half of the state; extending north to Pine county and Sandy lake, *Clark*, the Savannah portage, *Winchell*, and White Earth reservation, *Garrison*. "Wood of this and the preceding tough and durable; used for wedges, levers, &c."

MYRICACEÆ. SWEET-GALE FAMILY.**MYRICA**, L. BAYBERRY. WAX-MYRTLE.**M. Gale**, L. Sweet Gale.

Common on lake-shores, along the international boundary, between lake Superior and Rainy lake, *Winchell*. North.

COMPTONIA, Solander. SWEET-FERN.**C. asplenifolia**, Ait. Sweet-Fern.

Frequent northeastward; extending south to Snake river in southeastern Pine county, *Upham*, and southwest to Cass lake, *Schoolcraft*; it also occurs at Jacob Streitz's quarry in section 28, Saint Cloud, *Upham*, and near Excelsior, Hennepin county, *Mrs. Terry*.

BETULACEÆ. BIRCH FAMILY.

BETULA, Tourn. BIRCH.

[*B. lenta*, L. (cherry birch, sweet or black birch) possibly extends west to northern Minnesota. *Dr. Bell* mentions this state as its northwestern limit. Some of the more northern references under *B. nigra* may belong instead to this species.]

B. lutea, Michx. f. Yellow or Gray Birch.

Common through the north half of the state and south to Sherburne county, reaching a height of 75 feet and diameter of 3 or 4 feet; rare in the Big Woods, and southeast to Houston county, *Winchell*. "The 49th parallel forms the average northern limit of this species from Newfoundland to the Red river valley, in which it curves round and runs southward." *Bell*.

B. papyracea, Ait. Paper or Canoe Birch. Silver Birch.

Common, often abundant, through the north half of the state, attaining an equal size with the preceding; also common, but much smaller, southeastward near the Mississippi river; thence extending west, less frequent, to the Big Woods, and to Birch Cooley (plentiful), Renville county; absent southwestward; "found along the Assiniboine valley as far west as the Qu'Appelle lakes," *Bell*. "The bark of this tree, together with that of the Arbor-vitæ, is made use of in innumerable ways by the Indians." *Roberts*.

B. nigra, L. River or Red Birch.

Savannah portage, *Douglass*; White Earth reservation, *Garrison*; Kettle river, *Shumard*; Blue Earth county, *Nicollet*; Winona county, *Holzinger*; abundant along the Mississippi bottoms at least as far north as Minneiska, Wabasha county, *Winchell*. Southeast.

B. pumila, L. Low Birch. "Tag Alder."

Common through the north half of the state, and south to Minneapolis and Saint Paul; less frequent or rare farther south, to lake Pepin, *Miss Manning*, and Olmsted county, *Harrington*.

B. glandulosa, Michx. Dwarf Birch.

Savannah river, *Houghton*; north shore of lake Superior, *Juni*, *Winchell*; ridge east of the Red river, *Scott*. North.

ALNUS, Tourn. ALDER.**A. viridis**, DC. Green or Mountain Alder.

North of lake Superior (common), *Juni*, *Roberts*. North.

A. incana, Willd., var. **glauca**, Regel. Speckled or Hoary Alder. Black Alder.

Common, or frequent, through the north half of the state, and southeastward to Minneapolis; less frequent thence southeast; rare southwestward.

A. serrulata, Ait. Smooth Alder.

Lapham, *Winchell*. Rare. Southeast.

SALICACEÆ. WILLOW FAMILY.

SALIX, Tourn. WILLOW. OSIER.**S. candida**, Willd. Hoary Willow.

Throughout the state, excepting far southward. Bogs, St. Croix river, *Parry*; Min-

neapolis, *Kassube*; Blue Earth county, *Leiberg*; New Ulm, *Juni*; north of lake Superior, *Agassiz*; upper Mississippi river, *Garrison*; Red river valley, *Macoun*.

S. tristis, Ait. Dwarf Gray Willow.

Lapham. Minneapolis, *Winchell*; Blue Earth county, *Leiberg*; Lake City, *Mrs. Ray*.

S. humilis, Marshall. Prairie Willow.

Blue Earth county, *Leiberg*, *Upham*; frequent in Emmet county, Iowa, *Cratty*; abundant near the Mississippi river, on dry, sandy land, especially in openings of woods, from lake Pepin, *Miss Manning*, *Mrs. Ray*, and Ramsey county, north at least to Brainerd (usually only about one foot high, agreeing best, excepting in habitat, with Gray's description of *S. tristis*), *Upham*; north of lake Superior, *Agassiz*. Probably throughout the state.

S. discolor, Muhl. Glaucous Willow. Pussy Willow.

Common, or frequent, throughout the state.

[*S. sericea*, Marshall, probably occurs, but infrequently, in Minnesota.]

S. petiolaris, Smith.* Petioled Willow.

Freeborn county (frequent), *Upham*. Probably our prevailing form of this species is var. *GRACILIS*, Anders. (*M. S. Bebb*.)

S. purpurea, L. Purple Willow.

Minneapolis, *Simmons*. Infrequent.

S. cordata, Muhl. Heart-leaved Willow.

Common, or frequent, throughout the state.

S. cordata, Muhl., var. **angustata**, Gray.

Stearns county, *Garrison*. [North of lake Superior, *Agassiz*; Nebraska (common), *Aughey*.]

S. balsamifera, Barratt.† (*S. pyrifolia*, Anders.; see notes by *M. S. Bebb* in *Botanical Gazette*, vol. iv, p. 190.) Balsam-bearing Willow.

Red river valley near Saint Vincent, *Burgess*, *Macoun*. North.

**SALIX PETIOLARIS*, Smith, var. *GRACILIS*, Anders. Female aments gracefully subpendulous, at length somewhat leafy-peduncled, very loosely flowered; scales lunate, apex brownish; capsules long acute-rostrate from an ovate base, thinly silky, or somewhat glabrous, very long-pedicled; pedicel nearly eight times the length of the nectary; style very short; stigmas 2-parted, fuscous, spreading; leaves narrowly lanceolate-linear, serrulate, about 2 inches long and 2 to 4 lines wide, pale and subglaucous beneath, both sides at length glabrous. Varies: 1st, *sericeocarpa*; capsules narrowly conical, 2½ lines long, thinly silky. 2d, *leiocarpa*; capsules thick at base, greenish red. *Andersson* in *DC. Prod.*, 16, 2, 235; translated by *M. S. Bebb*.

†*SALIX BALSAMIFERA*, Barratt. A glabrous, much branched shrub, 4 to 8 feet high; twigs crimson where exposed to the sun; leaves ovate, abruptly pointed, 1 inch wide by ½ inches long, on sterile shoots oblong-lanceolate, 1½ inches wide by 3 to 4 inches long, all rounded or subcordate at base, very thin and slightly hairy beneath when young, rigid, glabrous, and prominently reticulate-veined when mature, bright green above, paler or glaucous beneath, margin finely glandular-serrate; petioles slender, ½ inch long; stipules minute, caducous: aments with a few leaf-like bracts at base, the male densely flowered, very silky, female less so and becoming very lax in fruit, bracts often more leafy; scales pale or rosy; capsules elongate-conical or rostrate from a thick base, 2 or 3 lines long, glabrous, the long pedicels six to eight times the length of the nectary; style rather short, bifid; lobes of the stigma thick, spreading, emarginate. "No. 53, Herb. H., B. and T." (v. s. in h. *Torr.*) *S. cordata*, Muhl., var. *balsamifera*, Hook., *Fl. Bor.-Am.*, 2, 149. *S. pyrifolia*, Anders., *DC. Prod.*, 16, 2, 264.—White mountains of N. H., *Pringle*; New Brunswick, *Fowler*; and Labrador, *Allen*; westward to the Saskatchewan. Readily distinguished from *S. cordata* by the very loosely flowered fertile aments, often two inches or more long in fruit, thicker and more yellowish staminate aments, and the proportionately broader and shorter Amelanchier-like leaves. *M. S. Bebb*, *MSS.*

S. rostrata, Richardson. (*S. livida*, Wahl., var. *occidentalis*, Gray.

Beaked Willow. Livid Willow.

Common throughout the state.

S. lucida, Muhl. Shining Willow.

Common, or frequent, throughout the state.

S. nigra, Marshall. Black Willow.

Throughout the state: frequent northward, common southward. This and the next are our only native species of willow that become trees, the others being shrubs.

S. amygdalooides, Anders.* Almond-leaved Willow.

Red river and eastward, Bebb; probably frequent throughout the state.

S. fragilis, L. *X alba*, L. White Willow.

Occasionally spontaneous; much cultivated, especially on the prairies, for shade and protection from the wind. Timber culture, of this tree, red and sugar maple, boxelder, cottonwood, Lombardy poplar, and other species, is being begun extensively in the prairie region, chiefly for the rewards provided by laws of the state and United States governments. The white willow is well adapted to yield fuel, as it grows rapidly, and, when cut down, shoots up vigorously anew from the stump. In good soil, with good care, probably ten acres of this willow would supply an average household with fire-wood continually.

M. S. Bebb regards this "white willow," commonly planted (by cuttings) for screens, as a hybrid of *S. fragilis* and *S. alba*, being apparently the form named *S. fragilis*, L., var. *Russelliana*, Carey, in Gray's *Manual*. Mr. Bebb writes: "Among the varieties cultivated throughout the Northwest, I have seen no genuine *S. alba*. In one form, *S. fragilis* *X alba*, var. (c.) *vestita*, Wimmer (*S. palustris*, Host.), the leaves approach very near to *S. alba*, var. *cerulea*, but the flowers are different. Much the more commonly planted form is *S. fragilis* *X alba*, var. (b.) *glabra*, Wimmer (exactly *S. excelsior*, Host.; *S. viridis*, Fries, when the under surface of the leaf is pale green)."

S. longifolia, Muhl. Long-leaved Willow. Sand-bar Willow.

Common throughout the state.

S. myrtilloides, L. Myrtle Willow.

Frequent northward, rare southward. Swamps, St. Croix river, *Parry*; north of lake Superior, *Agassiz*; Kanabec and Benton counties, *Upham*; Dellwood, White Bear lake, Ramsey county, *Kelley*; Minneapolis, *Kassabe*; near Eagle lake, Blue Earth county, *Leiberg*; Emmet county, Iowa (rare), *Cratty*.

POPULUS, Tourn. POPLAR. ASPEN.

P. tremuloides, Michx. American Poplar or Aspen.

Common, or abundant, throughout the state, especially northward. Wood of this and the next is valuable for paper-making.

P. grandidentata, Michx. Large-toothed Poplar or Aspen.

Common, or frequent, throughout most of the state; excepting the southeastern

**SALIX AMYGDALOIDES*, Anders. Leaves broadly lanceolate, 3 to 6 inches long, $\frac{1}{2}$ to $1\frac{1}{2}$ inches wide, with a long tapering point, glaucous beneath, closely serrate, petioles long and slender, stipules minute and very early deciduous: aments leafy-peduncled, elongated-cylindrical, pendulous; the fertile when in fruit lax, 3 to 4 inches long, $\frac{1}{2}$ inch thick; scales in the male ament ovate, villous with crisp hairs, in the female narrower, somewhat smooth, fugacious: capsules globose-conical, glabrous, long-pedicelled; style very short or obsolete, stigmas notched. . . . In aspect very unlike *S. nigra* [like which, this species attains a tree-like size], and in fact more frequently mistaken for *S. lucida*. The broad leaves, being supported by long and slender petioles, are moved by the slightest breeze, displaying in rapid, fluttering succession their conspicuous white under surfaces, thus producing an effect in striking contrast with the changeless, soft light reflected from masses of the foliage of *S. nigra* when swayed gently by the wind. Bebb in *Wheeler's Report of Surveys west of the One Hundredth Meridian*.

counties and far northward, where it occurs sparingly, and southwestward, where it is absent.

P. monilifera, Ait. (Including *P. angulata*, Ait.) Cottonwood. Necklace Poplar.

Common, or frequent, through the south half of the state; rare farther north; reaching its northern limit in southeastern Pine county, the region of the upper Mississippi, *Houghton*, White Earth reservation, *Garrison*, and Red Lake Falls and the Red river valley, *Upham*. "Large trees occur along the Assiniboine river," *Bell*. "Extensively planted for shelter and fuel. The cotton from the seeds proves a source of much annoyance to the tidy housewife. If only male trees, those with reddish tassels, were planted, no cotton would be produced. Both kinds of tassels, the green and the red, appear in spring before the leaves come out." *Arthur*.

P. balsamifera, L. Balsam Poplar. Tacamahac.

Common, or frequent, through the north half of the state; extending southwest to Cannon river (rare), *Sandberg*, Osakis lake, *Upham*, and Fergus Falls, *Leonard*.

P. balsamifera, L., var. **candicans**, Gray. Balm of Gilead.

Frequent northeastward; extending southwest to southeastern Pine county, Little Falls, and White Earth reservation.

P. dilatata, Ait. Lombardy Poplar.

Spontaneous, Mankato, *Leiberg*. [Stiff spiry tree, with closely appressed branches, and small broadly triangular pointed leaves; formerly much planted. *Gray's Field, Forest, and Garden Botany*.]

P. alba, L. White Poplar. Silver-leaf Poplar. Abele. Abel-tree.

Cultivated, and thence sometimes spreading spontaneously, in Martin county, *Cratty*. [Tree planted from Europe, with spreading branches, roundish, slightly heart-shaped wavy-toothed or lobed leaves soon green above, very white cottony beneath; buds not glutinous: spreads inveterately by the root. *Gray's Field, Forest, and Garden Botany*.]

CONIFERÆ. PINE FAMILY.

PINUS, Tourn., Link. PINE.

P. Banksiana, Lambert. "Jack Pine." Gray or Northern Scrub Pine. Banks' or Banksian Pine. Black Pine.

Common northeastward; abundant on sandy land in the region of the upper Mississippi and Crow Wing rivers, from Brainerd and Wadena northward; having its southwest limit at the St. Croix and Snake rivers, Princeton, Brockway (Stearns county), Stowe and Oak Valley (ten miles south of Wadena), in the White Earth reservation, and at the lake of the Woods and on Roseau river. This species, almost alone, but with red pines here and there sparingly intermixed, forms thick woods at many places in Cass, Wadena and Crow Wing counties, as, for example, at Brainerd, growing very straight and slender, 40 to 60 feet in height, but seldom exceeding a foot in diameter. Its coarse, resinous wood is excellent fuel, but it is not adapted to building purposes. Many railroad ties are made from this and the next species of pine, but are inferior in value and durability to those of bur oak, which are more used in this way. Often five ties, each eight feet long, are obtained from a single Jack pine. Rarely this tree attains a height of eighty feet, one of this size being found by *Professor Winchell* on Brule mountain, north of lake Superior. [This tree grows sixty to seventy feet high in northern Michigan (*Wheeler and Smith's Catalogue*, and *Bulletin of the Torrey Botanical Club*, x, 82); and *Dr. Bell* records it as about seventy feet in height and two feet in diameter, in large groves, on the southern branches of the Albany river.]

P. resinosa, Ait. "Norway Pine." Red Pine.

Common or frequent northward, growing in groves, or scattered, on somewhat sandy land; not extending, in general, quite so far southwest as the preceding. Usually

called "Norway pine"; but wrongly, for this species is not found in Norway, nor in Europe. It is mostly from 50 to 75 feet high, but seldom more than about a foot in diameter. *Clark* reports that it attains a height of 80 feet and diameter of 20 inches, north of lake Superior. It is considerably sawn for lumber, and is also much used for piles, as for wharves and foundations of bridge piers. In the region of the upper Mississippi this species is reported by *Garrison* as occurring in two varieties, which are distinguished by lumbermen under the names Hard Norway pine and Red-barked Norway pine.

P. Strobos, L. White Pine.

Common through the north half of the state, excepting west of Red lake and the lake of the Woods; preferring somewhat clayey land, occasionally making a majestic forest without intermixture of other large trees, but oftener associated with maple, elm, bass, oak, ash, and other deciduous species; frequent along the north side of lake Superior, but forming no extensive pine forest on the immediate shore. This is the largest, as well as the most useful, of our trees, growing from 80 to 125, rarely 150, feet in height, and from three to six feet in diameter.

The southwestern limit of the pines extends from the north edge of Chisago county westerly through Kanabec and Mille Lacs counties, the northeast corner of Benton county, Morrison county, and northeastern Todd county, to Pine lakes, Frazeecity, and the White Earth reservation; but only a comparatively small part of the region northeast of this line is covered with pine woods. Southeastward, beyond this limit, white pine occurs rarely and locally in the vicinity of the Mississippi, St. Croix, Cannon, Zumbro and Root rivers, in most instances on bluffs of these or their tributary streams; as at Saint Cloud, Dayton, Minnehaha falls, Pine Bend, Taylor's Falls, Frankenonia (where it was first cut in Minnesota, to any considerable extent, for lumber), near Cannon River Falls, near Mantorville, near Rochester, in section 29, Saint Charles, Winona county, and at various points in Fillmore and Houston counties.

Mr. Platt B. Walker, of Minneapolis, editor of the *Lumberman and Manufacturer*, states that approximately 400,000,000 feet (board-measure) of pine are annually cut in the north central part of this state, on the Mississippi river and its tributaries, about three-quarters of which are sawed at Minneapolis; and that some 200,000,000 feet are annually cut on the St. Croix river and its branches, about half of which is cut in Minnesota, chiefly on the Snake river, the amount sawed at Stillwater being some 100,000,000 feet yearly. Throughout these districts about three-quarters of the timber cut are white pine, and the remainder red or Norway pine. Much white pine is also cut on the St. Louis river, the Otter Tail river, Clearwater river (a tributary of Red Lake river), and recently on the Rainy Lake river; and red pine is cut on Pine creek, tributary to Roseau lake and river, west of the lake of the Woods.

The amount of merchantable pine standing in Minnesota in 1880 was estimated by *C. S. Sargent*, special agent of the United States census, at 6,100,000,000 feet; and the amount cut in the state during the preceding year is reported to be 510,997,000 feet.

PICEA, Link. SPRUCE.

P. nigra, Link. (*Abies nigra*, Poir.) Black Spruce. Double Spruce.

Common northeasterward; extending south to Chisago and Isanti counties, and west to Spruce Hill, Douglas county, the White Earth reservation, Red lake, and the lake of the Woods and Roseau river. It attains, in favorable situations, a height of 70 feet and diameter of 18 inches, *Clark*; but usually it is small, and none of it is cut for lumber in this state.

P. alba, Link. (*A. alba*, Michx.) White Spruce. Single Spruce.

Common far northward; extending south to Moose Lake, Carlton county, *Upham*, and to the upper Mississippi river and White Earth reservation, *Garrison*, and west to the lake of the Woods and Roseau river; 20 feet high, 8 inches in diameter, *Clark*.

TSUGA, Carrière. HEMLOCK-SPRUCE.

T. Canadensis, Carrière. (*Abies Canadensis*, Michx.) Hemlock-Spruce. Hemlock.

Mentioned by *Nicollet* as observed in the region of the upper Mississippi, and by

Norwood in the valley of the St. Louis river ; included in *Dr. Lapham's* catalogue ; also reported as occurring, locally, near Pokegama lake, Cass county, and at the north side of Sand lake, in the southwest part of T. 46, R. 19, Carlton county, and in other parts of this county, as on Black Hoof creek ; all of which need verification. Though plentiful not far eastward in Wisconsin, it extends very scantily, if at all, into Minnesota. ["On the south shore of lake Superior it does not reach the western extremity, turning southward in the neighborhood of Ashland. I am informed, however, that there is an outlying grove of hemlock at Thomson, about twenty-five miles west of Duluth. This tree maintains a good size to the verge of its range, and always appears to terminate abruptly." *Bell.*]

ABIES, Link. FIR.

A. *balsamea*, Marshall. Balsam Fir.

Common northeastward, attaining a height of 50 feet, *Clark*; extending south and west to nearly the same limits as the black spruce ; also farther south, rare and local, as near Mantorville, Dodge county, *Harrington*, and in the heavy timber in the northeast part of Spring Valley, Fillmore county, *Winchell*.

LARIX, Tourn. LARCH.

L. *Americana* Michx. American or Black Larch. Tamarack. Hackmatack.

Abundant through the north half of the state, and common southeast to Wright, Hennepin and Ramsey counties ; rare farther southeast, as on Pine creek in Houston county, *Winchell*; absent southwestward. This tree occurs in swamps, which are generally frequent, varying in extent from a few rods to several miles. *Mr. Nathan Butler* states that such swamps, bearing tamarack but scarcely any other trees, occupy nearly the entire country between Red lake and the lake of the Woods ; and *Mr. G. M. Dawson* and others give a similar description of the area crossed by the international boundary between the lake of the Woods and the Red river valley. Tamarack also often grows on drier, hard ground ; sometimes, north of lake Superior, attaining a height of 90 or 100 feet (but very slender, having a diameter of only about one foot ; valuable for railroad ties), *Clark*. Its usual height is from 20 to 40 feet.

Watab river and township bear the name which the Chippewas give to the long threads obtained by splitting tamarack roots, used by them in sowing their birch canoes. *Keating's Narrative of Long's Expedition*, vol. ii, p. 73.

THUYA (Thuja), Tourn. ARBOR VITÆ.

T. *occidentalis*, L. American Arbor Vitæ. "White Cedar."

Common northeastward, forming almost impenetrable "cedar swamps," often attaining a large size, from 40 to 70 feet in height, and from one to two or even three feet in diameter, *Clark, Roberts*; extending west to the south end of lake Winnipeg, *Bell*, the lake of the Woods and Roseau river, Red and Pemidji lakes, and to the head of Straight river in northeastern Becker county, and south to the south shore of Mille Lacs and the mouth of Snake river. It also occurs very rarely farther southeast, as on Gwinn's bluff in southeastern Winona county, *Winchell*. On the north shore of lake Superior, "not so common as inland, but maintains its hold upon life in the most unfavorable positions. Often the only representative of the vegetable kingdom on a bare rock in the lake, where its stem and branches plainly indicate the direction of the prevailing winds and waves." *Juni*. This tree is the principal species upon a large area adjoining the Mississippi river in northern Aitkin county. Its wood is light and very durable, being especially sought for fence and telegraph posts. It is often spiral-grained.

JUNIPERUS, L. JUNIPER.

J. *communis*, L. Common Juniper.

Throughout the state, but infrequent. Minnesota Point, near Duluth (plentiful), also near Minneapolis, *Roberts*; Wadena and Benton counties (rare), *Upham*; Sherburne

and Ramsey counties, *Kelley*; Hennepin county, *Simmons*; Goodhue county, *Sandberg*; southeastern Winona county, *Winchell*; Dodge county, *Harrington*; Blue Earth county, *Leiberg*; bluffs of the Cottonwood river, *Juni*.

J. communis, L., var. **alpina**, Gaud. Juniper.

North shore of lake Superior, *Juni*; Taylor's Falls, *Miss Catheart*. North.

J. Virginiana, L. Red Cedar. Red Savin:

Rainy Lake river, *Dawson*; upper Mississippi (rare), *Nicollet*, *Garrison*; lake Pepin, *Miss Manning*; bluffs of the Cottonwood river, *Juni*; at Redwood Falls, perhaps furnishing the name of the Redwood river. (Also see *Cornus stolonifera*.) Found scantily in exposed situations, as on the bluffs or shores of rivers and lakes, growing to be 10 to 25 feet high, in the greater part of the state; most frequent in its southeast quarter; absent, or rare, near its west side and north of lake Superior.

J. Sabina, L., var. **procumbens**, Pursh. Savin. Juniper.

Lake of the Woods, *Dawson*; plentiful on dunes at Sand Hill river, *Garfield*, *Polk* county, *Upham*; near Itasca lake, *Garrison*; Rice county, *Sperry*; bluffs of Le Sueur river, *Leiberg*; Olmsted county (rare), *Harrington*; the Big Woods, and Fillmore, *Winona* and *Houston* counties (rare), *Winchell*. North.

TAXACEÆ. YEW FAMILY.

TAXUS, Tourn. YEW.

T. Canadensis, Willd. (*T. baccata*, L., var. *Canadensis*, Gray.) American Yew. Ground Hemlock.

Abundant north of lake Superior, *Juni*, *Roberts*; common, or frequent, thence west and south to nearly the same limits as the pines, black spruce and balsam fir; near Lake City, *Mrs. Ray*.

ARACEÆ. ARUM FAMILY.

ARISÆMA, Martius. INDIAN TURNIP. DRAGON-ARUM.

A. triphyllum, Torr. (*A. atrorubens*, Blume. *Bot. Gazette*, ix, 114.) Indian Turnip. Jack-in-the-Pulpit.

Common, or frequent, throughout the state.

A. Dracontium, Schott. Green Dragon. Dragon-root.

Lake Pepin, *Miss Manning*. Rare. Southeast.

CALLA, L. WATER ARUM. CALLA.

C. palustris, L. Water Arum. Wild Calla.

Common in the north half of the state, and southeast to Minneapolis and Saint Paul; rare farther southeast, as near lake Pepin, *Miss Manning*; absent southwestward.

SYMPLOCARPUS, Salisb. SKUNK CABBAGE.

S. foetidus, Salisb. Skunk Cabbage.

Chisago county, etc. (common), *Upham*; Stillwater, *Miss Field*; Saint Paul, *Kelley*; near Minnehaha falls, *Roberts*; lake Pepin, *Miss Manning*; Winona county, *Holzinger*; New Ulm, *Juni*. [Hesper, Iowa, *Mrs. Carter*; lake Superior, *Whitney*.]

ACORUS, L. SWEET FLAG. CALAMUS.**A. Calamus, L.** Sweet-Flag. Calamus.

Common, or frequent, throughout the state; excepting perhaps southwestward, in which direction it extends at least to Redwood Falls, *Miss Butler*, and Emmet county, Iowa (rare), *Cratty*.

LEMNACEÆ. DUCKWEED FAMILY.

LEMNA, L. DUCKWEED. DUCK'S-MEAT.**L. trisulea, L.** Duckweed. Duck's-meat.

Throughout the state. Minnesota river, *Parry*; Blue Earth county (flowering plentifully in 1882), *Leiberg*; frequent in Martin county, and in Emmet county, Iowa, *Cratty*; Minneapolis, *Arthur*, *Roberts*; Taylor's Falls, *Mrs. Ray*; Pembina, *Chickering*; Red river prairie and lake of the Woods, *Dawson*.

L. minor, L. Duckweed. Duck's-meat.

Throughout the state. Blue Earth county, *Leiberg*; Minneapolis, *Arthur*, *Simmons*; Duluth harbor (plentiful), *Roberts*; also, Red river prairie and lake of the Woods (common), *Dawson*.

SPEIRODELA, Schleid. DUCKWEED. DUCK'S-MEAT.**S. polypyrrhiza, Schleid.** (*Lemna polypyrrhiza, L.*) Duckweed. Duck's-meat.

Throughout the state. Blue Earth county, *Leiberg*; frequent in Martin county, and in Emmet county, Iowa, *Cratty*; Minneapolis (abundant), *Arthur*, *Upham*; Saint Paul, *Kelley*; and northwest to the Saskatchewan river.

WOLFFIA, Hörkel, Schleid. WOLFFIA.**W. Columbiana, Karsten.** Wolffia.

Found by *Mr. Leiberg* in a pond at the southwest edge of the village of South Bend, Blue Earth county; plentiful, covering the surface to a depth of one or two inches in the summer; often blown upon the shore in small ridges by storms; slightly spreading to adjacent ponds; determined by *Dr. Engelmann*, who thinks that it is not a native of these northern latitudes, but has been probably brought by water-fowls. It appears to have become thoroughly acclimated in this locality.

TYPHACEÆ. CAT-TAIL FAMILY.

TYPHA, Tourn. CAT-TAIL FLAG.**T. latifolia, L.** Common Cat-tail. Reed-mace.

Common throughout the state.

SPARGANIUM, Tourn. BUR-REED.**S. eurycarpum, Engelm.** Bur-reed.

Throughout the state. Lake of the Woods, *Dawson*; Minneapolis (common), *Roberts*; West Saint Paul, *Miss Butler*; Wabasha, *Gibson*; Blue Earth county, *Leiberg*; Redwood Falls, *Pemberton*; Emmet county, Iowa (rare), *Cratty*.

S. simplex, Hudson. Bur-reed.

Red river valley, at Pembina, *Chickering*; Agate bay, lake Superior, *Juni*; West Saint Paul, *Miss Butler*; lake Pepin, *Miss Manning*.

S. simplex, Hudson, var. **Nuttallii**, Gray. Bur-reed.

St. Croix river, *Parry*.

S. simplex, Hudson, var. **androcladum**, Gray. Bur-reed.

Freeborn county, *Upham*.

S. simplex, Hudson, var. **angustifolium**, Gray. Bur-reed.

Lapham. North. [Isle Royale, *Whitney*.]

S. minimum, Bauhin. Bur-reed.

Brooks, St. Croix river, *Parry*; lake of the Woods, *Dawson*. [North of lake Superior, *Agassiz*; Isle Royale, *Whitney*.] North.

NAIADACEÆ. PONDWEED FAMILY.

NAIAS, L. NAIAD.

N. flexilis, Rostk. & Schmidt. Naiad.

Throughout the state. Blue Earth county, *Leiberg*; plentiful in Martin county and in Emmet county, Iowa, *Cratty*; Minneapolis (abundant), *Miss Butter*. [Manitoba, *Macoun*.]

ZANNICHELLIA, Micheli. HORNED PONDWEED.

Z. palustris, L. Horned Pondweed.

Peat-bogs between Kasota and Mankato, *Leiberg*. Rare.

POTAMOGETON, Tourn. PONDWEED. POTAMOGETON.

P. natans, L. Pondweed.

Common, or frequent, throughout the state.

P. Claytonii, Tuckerman. Pondweed.

Plentiful near Stewart river, north of lake Superior, *Roberts*.

[*P. rufescens*, Schrader, will probably be found in northeastern Minnesota.]

P. lonchites, Tuckerm. Pondweed.

Le Sueur river, Blue Earth county, *Leiberg*; Emmet county, Iowa (frequent), *Cratty*. South.

P. amplifolius, Tuckerman. Pondweed.

Plentiful in Devil's Track lake, north of lake Superior, *Roberts*; lake Pepin, *Miss Manning*; Emmet county, Iowa (rare), *Cratty*.

P. gramineus, L., var. **heterophyllum**, Fries. Pondweed.

Throughout the state. Abundant in Devil's Track lake, *Roberts*; frequent in Emmet county, Iowa, *Cratty*.

P. lucens, L. Pondweed.

Throughout the state, but infrequent. Lake Minnetonka, *Roberts*; White Bear lake, Ramsey county, *Simmons*; Stearns county, *Campbell*. [North of lake Superior, *Agassiz*; Manitoba, *Macoun*.]

P. lucens, L., var. **minor**, Nolte. Pondweed.

Lake Minnetonka, *Herrick*, *Roberts*.

[*P. prælongus*, Wulfen., will doubtless be found in Minnesota.]

P. Illinoensis, Morong.* Pondweed.

Emmet county, Iowa, *Cratty, Arthur*; doubtless also to be found in southern Minnesota.

P. perfoliatus, L. Pondweed.

Throughout the state. Blue Earth county, *Leiberg*; lake Calhoun, Minneapolis, *Upham*; Stearns county, *Campbell*; lake of the Woods, *Dawson*.

P. perfoliatus, L., var. **lanceolatus**, Robbins. Pondweed.

Also throughout the state. Lake Minnetonka, *Arthur*; frequent in Martin county, and in Emmet county, Iowa, *Cratty*.

P. zosterifolius, Schum. (P. compressus, Fries, not L.) Pondweed.

Minneapolis, *Simmons*; Blue Earth county, *Leiberg*, and Martin county (frequent), *Cratty*, both determined by *Rev. T. Morong*.

P. pauciflorus, Pursh. Pondweed.

Minneapolis (common), *Miss Butler*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*, determined by *Rev. T. Morong*; Emmet county, Iowa (frequent), *Cratty*. [North of lake Superior, *Agassiz*.]

P. pusillus, L. Pondweed.

Throughout the state. Lake of the Woods, *Dawson*; White Bear lake, Ramsey county, *Simmons*; Emmet county, Iowa, *Cratty*, determined by *Rev. T. Morong*.

P. pusillus, L., var. **major**, Fries. Pondweed.

Martin county (frequent), *Cratty*, determined by *Rev. T. Morong*.

P. pusillus, L., var. **vulgaris**, Fries. Pondweed.

Lake Minnetonka (plentiful), *Herrick, Roberts*; Winona lake, *Holzinger*.

P. pectinatus, L. Pondweed.

Throughout the state. Mississippi river near Saint Cloud, *Campbell*; Blue Earth county, *Leiberg*; Martin county (abundant), *Cratty*, determined by *Rev. T. Morong*. [North of lake Superior, *Agassiz*; James river, Dakota, *Geyer*.]

ALISMACEÆ. WATER-PLANTAIN FAMILY.

TRIGLOCHIN, L. ARROW-GRASS. (This genus and SCHEUCHZERIA are included in the preceding order, NAIADACEÆ, by *Watson* in the *Botany of California*.)

**POTAMOGETON ILLINOENSIS*, Morong. Stem stout, branching towards the summit; floating leaves opposite, thick, coriaceous, oval or ovate, 2 to 3 inches long by 1½ broad, 19- to 23-nerved, rounded or sub-cordate at base, and with a short blunt point at the apex, on short petioles; submersed leaves comparatively few, dark green, oblong-elliptical, acute at each end, usually ample (the largest nearly 8 inches long and 1½ wide), entire, rarely mucronate, nearly or quite sessile, the uppermost opposite; stipules coarse, free, obtuse, strongly bicarinate, about 2 inches in length; peduncles often clustered at the summit of the stem, 2 to 4 inches long, usually somewhat thickening upwards; spikes about 2 inches long, densely flowered; fruit roundish obovate, 1¼ to 2 lines long and 1 to 1½ lines wide, 3-keeled on the back, the middle keel prominent and sometimes shouldered at the top, flattened and slightly impressed on the sides, obtuse or occasionally pointed at the base, the style short and nearly facial, the apex of the embryo pointing transversely inwards. Allied to *P. lucens*, L., in habit, but with larger fruit, and in foliage quite distinct. *Morong* in *Botanical Gazette*, vol. v, p. 50 (May, 1880).

T. palustre, L. Arrow-grass.

Throughout the state. Peat-bogs between Kasota and Mankato (plentiful), *Leiberg*; Red river valley, *Scott*.

T. maritimum, L. Arrow-grass.

Lapham. Stearns county, *Campbell*. [Sheyenne river and Devil's lake, Dakota, *Geyer*.] North.

T. maritimum, L., var. **elatum**, Gray. Arrow-grass.

Duluth (common), and Minneapolis (frequent), *Roberts*; Chisago county, *Upham*; upper Minnesota river, *Parry*; also, peat-bogs between Kasota and Mankato (plentiful), *Leiberg*; Emmet county, Iowa (rare), *Cratty*.

SCHEUCHZERIA, L. SCHEUCHZERIA.**S. palustris**, L. Scheuchzeria.

St. Croix river, *Parry*; near Clearwater, Wright county, *Mrs. Terry*; Minneapolis, *Kassube*, (lake Calhoun) *Miss Butler*; Emmet county, Iowa (rare), *Cratty*.

ALISMA, L. WATER-PLANTAIN.**A. Plantago**, L. Water-Plantain.

Common throughout the state. "Very variable as respects foliage, the forms being determined chiefly by the place of growth and not deserving to rank as varieties." *Watson, Botany of California*.

ECHINODORUS, Richard, Engelmann. ECHINODORUS.**E. parvulus**, Engelm. Echinodorus.

Muddy margins of ponds, St. Croix, *Parry*. [North of lake Superior, *Agassiz*.]

SAGITTARIA, L. ARROW-HEAD.**S. variabilis**, Engelm. Common Arrow-head.

Common (especially the var. *hastata*, Gray) throughout the state; var. *angustifolia*, Gray, Minneapolis, *Miss Butler*. "This plant, so variable in foliage, and so abundant in distribution, furnishes an important article of native food in the tubers which beset its fibrous roots. These tubers (from the fact of their affording nourishment to the larger aquatic fowls which congregate in such abundance about the northwestern lakes) are called by the Chippewas, Wab-es-i-pi-nig, or swan potatoes, a name which has been naturally appropriated to several streams of this region, Wabesipinicon; meaning, the abode of the swan potato. These tubers frequently attain the size of a small hen's-egg, and are then eaten by the Indians, with whom they are a great favorite. In their raw state they contain a bitter, milky juice, but in boiling become sweet and palatable." *Parry*.

S. heterophylla, Pursh. Arrow-head.

Upper Mississippi river, *Houghton*; Hennepin county, *Roberts*, *Griswold*; probably extending through the south half of the state.

S. graminea, Michx. Arrow-head.

Minneapolis, *Kassube*. South.

S. cristata, Engelm.* Arrow-head.

Emmet county, Iowa, on the south boundary of Minnesota, *Cratty*; doubtless also in this state.

* **SAGITTARIA CRISTATA**, Engelm. Flowers only of the lowest whorl fertile; fruit-heads much larger than in *S. graminea*; achene broad, with a conspicuous horizontal

HYDROCHARIDACEÆ. FROG'S-BIT FAMILY.

ANACHARIS, Richard. WATER-WEED.

A. Canadensis, Planchon. Water-weed.

Common throughout the state. Duluth harbor (plentiful), and Minneapolis, *Roberts*; lake Minnetonka, *Miss Butler*; Winona lake, *Holzinger*; Blue Earth county, *Leiberg*; plentiful in Martin county, and in Emmet county, Iowa, *Cratty*. This aquatic plant, common, but nowhere troublesome, in this its native country, having become naturalized in Europe, grows there more rankly, so as to become in many places a serious obstruction to river-navigation. Since 1836, when it first appeared in England and Ireland, it has spread eastward upon the continent along the rivers of Belgium, Holland and Germany, and is now complained of at Riga in western Russia. *Popular Science Monthly*, vol. xix, p. 430 (July, 1881).

VALLISNERIA, Micheli. TAPE-GRASS. EEL-GRASS.

V. spiralis, L. Tape-grass. Eel-grass.

With the preceding, in Duluth harbor (plentiful), and Minneapolis, *Roberts*, (lake Calhoun) *Miss Butler*; Blue Earth county, *Gedge*, (Eagle lake) *Leiberg*; Redwood Falls, *Miss Butler*.

ORCHIDACEÆ. ORCHIS FAMILY.

ORCHIS, L. ORCHIS.

O. spectabilis, L. Showy Orchis.

Duluth (frequent), and Saint Paul (rare), *Miss Catheart*; Stearns county, *Campbell*; Fergus Falls, *Leonard*; Minneapolis (frequent), *Roberts*; Northfield, *Chaney*; Faribault, *Miss Beane*; Blue Earth county, *Leiberg*; frequent at Hesper, Iowa, *Mrs. Carter*.

O. rotundifolia, Pursh. (*Habenaria rotundifolia*, Richardson.) Orchis.

Detroit, Becker county, *Gedge*. Rare. North.

HABENARIA, Willd. REIN-ORCHIS.

H. tridentata, Hook. Rein-Orchis.

Lapham. Goodhue county, *Sandberg*. [North of lake Superior, *Agassiz*.] Infrequent.

H. virescens, Spreng. Greenish Orchis.

Lake City, *Miss Manning*; Goodhue county, *Sandberg*; Minneapolis, *Roberts*; Stearns county, *Campbell*; Detroit, Becker county, *Gedge*. Infrequent.

H. viridis, R. Br., var. bracteata, Reich. Bracted Green Orchis.

Throughout the state. Carlton's Peak, north of lake Superior, and also near Minneapolis, *Roberts*; eastern border of Red river prairie, *Dawson*; Stearns county, *Campbell*; lake Elmo, Washington county, *Leonard*; Blue Earth county, *Leiberg*; Faribault, *Miss Beane*; Winona county, *Holzinger*. [Hesper, *Mrs. Carter*, and south to Council Bluffs, Iowa, *Geyer*.]

style, and crested back and sides. . . . Near *S. graminea*, Michx., and perhaps only a variety of it, although the only other *Sagittaria* with such crests to the achenia is *S. natans*, Michx. Further observations are needed to eventually place it correctly. *Letter of Dr. Engelmann*, dated March 15th, 1882, in *Arthur's Contributions to the Flora of Iowa*, No. V.

H. hyperborea, R. Br. Northern Green Orchis.

Throughout the state. Lake Superior, *Whitney*; lake of the Woods, *Dawson*; Detroit, Becker county, *Gedge*; Stearns county, *Campbell*; Minneapolis (common), *Roberts*; Hesper, Iowa (rare), *Mrs. Carter*.

H. dilatata, Gray. Rein-Orchis. Northern White Orchis.

Lake Superior, *Whitney*; Detroit, *Gedge*; Minneapolis (common), *Roberts*; St. Croix river, *Parry*. North.

[*H. rotundifolia*, Richardson, is found to belong to the preceding genus, *Orchis*.]

H. obtusata, Richardson. Rein-Orchis.

Abundant north of lake Superior, *Juni*, *Roberts*. North.

H. Hookeri, Torr. Small Two-leaved Orchis.

Throughout the state. St. Croix river, *Parry*; Elk River, Sherburne county, *Campbell*; Saint Paul, *Miss Cathcart*; Winona county, *Holzinger*; Hesper, Iowa, *Mrs. Carter*. [Lake Superior, *Whitney*; Manitoba, *Macoun*.]

H. orbiculata, Torr. Large Round-leaved Orchis.

North of lake Superior, *Juni*, *Roberts*; St. Louis river, *Mrs. Herrick*. Northeast.

H. blephariglottis, Hook., var. **holopetala**, Gray. White Fringed-Orchis.

Minnesota Point, near Duluth, *Miss Cathcart*. Rare.

H. leucophaea, Gray. Western Greenish Fringed-Orchis.

Frequent in the south half of the state, extending north at least to Alexandria, *Mrs. Terry*, and Clay county, in the Red river valley, *Upham*. Sometimes almost pure white. It has spread widely in Martin county during the past six or seven years, being now very common in some parts of the county, *Gedge*.

H. lacera, R. Br. Ragged Fringed-Orchis.

Minneapolis, *Roberts*; Goodhue county, *Sandberg*. South.

H. psycodes, Gray. Purple Fringed-Orchis.

Frequent throughout the state.

GOODYERA, R. Br. RATTLESNAKE-PLANTAIN.**G. repens**, R. Br. Rattlesnake-Plantain.

North of lake Superior (common), also at Minneapolis, *Roberts*; St. Croix Falls, *Miss Field*. North.

G. pubescens, R. Br. Rattlesnake-Plantain.

North of lake Superior, *Juni*; Taylor's Falls, *Miss Cathcart*, *Roberts*; Clearwater, Wright county, *Mrs. Terry*; Cannon River Falls, *Blake*, *Sandberg*.

G. Menziesii, Lindl. Rattlesnake-Plantain.

Isle Royale, *Dr. A. B. Lyons*; doubtless also in Minnesota north of lake Superior.

SPIRANTHES, Richard. LADIES' TRESSES.**S. latifolia**, Torr. Ladies' Tresses.

Lapham. Hills of Zumbro river, *Geyer*. Rare. Southeast.

S. Romanzoffiana, Chamisso. Ladies' Tresses.

North shore of lake Superior. *Juni*; Polk county, *Upham*; Clay county, *Gedge*; Stearns county, *Campbell*; Minneapolis, *Roberts*; Cottonwood county, *Holzinger*; peat-bog between Kasota and Mankato (very scarce), *Leiberg*. North.

S. cernua, Richard. Ladies' Tresses.

Common, or frequent, through the south half of the state, and perhaps northward;

Lake Superior, *Whitney*, and lake of the Woods, *Dawson*; var. *latifolia*, *Torr.*, hills of Zumbro river, *Geyer*.

S. gracilis, B. gelow. Ladies' Tresses.

Throughout the state, but infrequent. Pine barrens, St. Croix river, *Parry*; Stearns county, *Campbell*; Minneapolis, *R. S. Williams*, *Roberts*; lake Pepin, *Miss Manning*. [Decorah, Iowa, *Arthur*; Nebraska, *Aughey*; Manitoba, *Macoun*.]

LISTERA, R. Br. TWAYBLADE.

L. cordata, R. Br. Twayblade.

Between lake Superior and the lake of the Woods, *Macoun*; Isle Royale, *Dr. A. B. Lyons*. North.

L. convallarioides, Nutt. Twayblade.

Also, between lake Superior and the lake of the Woods, *Macoun*; Isle Royale, *Dr. A. B. Lyons*. North.

ARETHUSA, Gronov. ARETHUSA.

A. bulbosa, L. Arethusa.

Chisago county, *Upham*; Ramsey county (near lake Johanna), *Roberts*; Red Wing, *Sandberg*. Rare. North.

POGONIA, Juss. POGONIA.

P. ophioglossoides, Nutt. Pogonia.

St. Croix river, *Parry*; Isanti county, *Upham*; Stearns county, *Campbell*; Saint Paul, *Mrs. Terry, Kelley*; Minneapolis (frequent), *Roberts, Miss Butler*.

[*P. pendula*, Lindl., and *P. verticillata*, Nutt., should be looked for in this state.]

CALOPOGON, R. Br. CALOPOGON. GRASS PINK.

C. pulchellus, R. Br. Calopogon. Grass Pink.

Common, or frequent, throughout the state.

CALYPSO, Salisb. CALYPSO.

C. borealis, Salisb. Calypso.

Black Point, north shore of lake Superior, *Roberts*; Duluth, *Miss Cathcart*. Rare. North.

MICROSTYLLIS, Nutt. ADDER'S-MOUTH.

M. monophyllum, Lindl. Adder's-Mouth.

Lapham. St. Croix river, *Parry*; Taylor's Falls, *Roberts*. Rare. North.

M. ophioglossoides, Nutt. Adder's-Mouth.

Itasca lake, *Houghton*; Mille Lacs, *Campbell*; St. Croix river, *Parry*; at head of lake Pepin, *Sandberg*; Hesper, Iowa (rare), *Mrs. Carter*. [Manitoba, *Macoun*.]

LIPARIS, Richard. TWAYBLADE.

L. liliifolia, Richard. Twayblade.

Minneapolis (one mile west of city), *Roberts*; near Saint Paul, *Mrs. Terry*; Goodhue county, *Sandberg*; Winona county, *Holzinger*; Hesper, Iowa, *Mrs. Carter*. Rare.

L. loeselii, Richard. Twayblade.

In tamarack swamp; near Minneapolis, *Roberts*; Stearns county, *Campbell*. Rare.

CORALLORHIZA, Hailer. CORAL-ROOT.**C. innata**, R. Br. Coral-root.

Stearns county, *Campbell*; along the northern boundary of Minnesota, *Macoun*. Throughout the state: rare southward, frequent northward.

C. multiflora, Nutt. Coral-root.

Hesper, Iowa, *Mrs. Carter*; Taylor's Falls, *Roberts*; Stearns county, *Campbell*; Pembina, *Havard*; lake Superior, *Whitney*. Throughout the state, but infrequent.

C. Macraei, Gray. Coral-root.

Lapham. [Mackinaw (abundant), *Whitney*.] Rare in Minnesota.

APLECTRUM, Torrey. PUTTY-ROOT. ADAM-AND-EVE.**A. hiemale**, Torr. Putty-root. Adam and Eve.

St. Croix Falls, *Miss Field*; Saint Paul, *Miss Cathcart*; Hastings, *Mrs. Ray*; Faribault, *Miss Beane*; in woods at the head of Van Brunt slough, Mankato, *Leiberg*. [Manitoba, *Macoun*.] Rare.

CYPRIPEDIUM, L. LADY'S-SLIPPER. MOCCASIN-FLOWER.**C. arietinum**, R. Br. Ram's-head Lady's-Slipper.

Clearwater lake, in the northwest part of Wright county, *Mrs. Terry*; Stearns county, *Campbell*; Detroit, Becker county, *Gedge*. Rare. North.

C. candidum, Muhl. Small White Lady's-Slipper.

Through the south half of the state, mostly infrequent and local. Winona county, *Holzinger*; lake Pepin, *Miss Manning*; Cannon River Falls, *Blake*, *Sandberg*; Minneapolis, *Roberts*, (lake Harriet) *Mrs. Terry*; Anoka county, also New Ulm, *Juni*; Faribault, *Miss Beane*; Nicollet county, *Leiberg*; Emmet county, Iowa (plentiful), *Cratty*; extending north at least to Morrison county, *Miss Babbitt*, the upper Mississippi river, *Garrison*, and Fergus Falls, *Leonard*.

C. parviflorum, Salisb. Smaller Yellow Lady's-Slipper.

Frequent throughout the state, excepting far southward.

C. pubescens, Willd. Larger Yellow Lady's-Slipper.

Common, or frequent, throughout the state.

C. spectabile, Swartz. Showy Lady's-Slipper.

Common, or frequent, often growing on dryish hard land, throughout the state; excepting perhaps far northeastward, in which direction it extends at least to the St. Louis river, *Mrs. Herrick*, the upper Mississippi river, *Garrison*, Detroit, Becker county (abundant), *Gedge*, and Pembina, *Havard*.

C. acaule, Ait. Stemless Lady's-Slipper.

Frequent through the north half of the state; extending south to Saint Paul, *Miss Cathcart*, Minneapolis (in tamarack swamps) *Roberts*, and Martin county, *Gedge*.

AMARYLLIDACEÆ. AMARYLLIS FAMILY.**HYPOXYS**, L. STAR-GRASS.**H. erecta**, L. Star-grass.

Common through the south half of the state and in the Red river valley; extending northeast to the upper Mississippi river.

HÆMODORACEÆ. BLOODWORT FAMILY.

ALETRIS, L. COLIC-ROOT. STAR-GRASS.

A. farinosa, L. Colic-root. Star-grass.
Lapham. Rare. Southeast.

IRIDACEÆ. IRIS FAMILY.

IRIS, Tourn. FLOWER-DE-LUCE. IRIS.

I. versicolor, L. Larger Blue Flag.
Common, or frequent, throughout the state.

SISYRINCHIUM, L. BLUE-EYED GRASS.

S. angustifolium, Miller. (S. Bermudiana, L., in part; see *American Naturalist*, vol. xviii, pp. 623-5; June, 1884.) Blue-eyed Grass.

This variable species (in the varieties *anceps* and *muconatum*, with intermediate forms) is found throughout the state, being usually abundant in all the prairie region. The var. *albidum* occurs infrequently at Marine, Washington county, *Miss Field*, Minneapolis, *Roberts*, *Kassabe*, and southwestward.

DIOSCOREACEÆ. YAM FAMILY.

DIOSCOREA, Plumier. YAM.

D. villosa, L. Wild Yam-root.

Common, or frequent, through the south part of the state; extending north to Saint Paul, *Roberts*, Minneapolis, *Kassabe*, (lake Calhoun) *W. H. Hatch*, Anoka county, *Juni*, and the north side of Snake river east of Chengwatana, Pine county, *Upham*.

SMILACEÆ. SMILAX FAMILY.

SMILAX, Tourn. GREENBRIER. CATBRIER.

S. rotundifolia, L. Common Greenbrier.

Lake Superior to the Mississippi, *Houghton*; Stearns county, *Mrs. Blaisdell*; Anoka county, *Juni*; Minneapolis (common), *Roberts*, *Upham*; Minnesota river, *Parry*; Faribault, *Miss Beane*; Goodhue county, *Sandberg*; lake Pepin, *Miss Manning*; Houston county, *Winchell*.

S. hispida, Muhl. Greenbrier. Catbrier.

Minnesota river, *Parry*; Blue Earth county, *Leiberg*; frequent in Martin county, and in Emmet county, Iowa, *Cratty*; Kanabec county, *Upham*.

S. herbacea, L. Carrion-Flower.

Common, or frequent, throughout the state.

S. herbacea, L., var. **pulverulenta**, Gray. Carrion-Flower.

Vicinity of Hesper, Iowa, on the southern border of Houston and Fillmore counties, *Mrs. Carter*; Lake City, *Mrs. Ray*; Faribault, *Miss Beane*.

LILIACEÆ. LILY FAMILY.

TRILLIUM, L. TRILLIUM. THREE-LEAVED NIGHTSHADE. WAKE-ROBIN.

T. sessile, L. Trillium. Three-leaved Nightshade. Wake-Robin.
Saint Paul, *Miss Cathcart*. Southeast.

T. recurvatum, Beck. Trillium. Thre-leaved Nighthshade.
Lake Pepin, *Miss Manning*. Southeast.

T. grandiflorum, Salisb. Large White Trillium or Wake-Robin.

Frequent northward; extending southeast to lake Pepin, *Miss Manning*, Northfield, Rice county, *Chaney*, and Blue Earth county, *Gedge*.

T. erectum, L. Purple Trillium or Birthroot. Bath Flower.

Lapham. Blue Earth county, *Leiberg*; Saint Paul, *Miss Cathcart*; Minneapolis, *Simmons*. Rare. (Watson's *Revision of the North American Liliaceæ* makes this name include also the two following, which, however, are retained here as in Gray's *Manual*.)

T. erectum, L., var. **album**, Pursh. Trillium. Birthroot.

Winona, *Holzinger*; Marine, Washington county, *Miss Field*; Stearns county, *Garrison*. Rare.

T. erectum, L., var. **declinatum**, Gray. Trillium. Birthroot.

Frequent, in some localities plentiful, throughout the state.

T. cernuum, L. Nodding Trillium or Wake-Robin.

Common, or frequent, throughout most of the state; extending north at least to Grand Marais, *Roberts*, and the upper Mississippi river, *Garrison*; and west to Fergus Falls, *Leonard*, and Redwood Falls, *Pemberton*.

T. nivale, Riddell. Dwarf White Trillium. Snowy Trillium.

Winona, *Holzinger*; lake Pepin, *Miss Manning*; near South Bend, Blue Earth county, *Leiberg*; Emmet county, Iowa, *Cratty*. Rare. South.

MEDEOLA, Gronov. INDIAN CUCUMBER-ROOT.

M. Virginiana, L. Indian Cucumber-root.

Lapham. Near Saint Paul, *Mrs. Terry*; Lake City, *Mrs. Ray*. Infrequent. Southeast.

MELANTHIUM, L. MELANTHIUM.

M. Virginicum, L. Bunch-flower.

Minneapolis (near lake Calhoun), *Mrs. Terry*. Rare. Southeast.

ZYGADENUS, Michx. ZYGADENE.

Z. elegans, Pursh. (*Z. glauca*, Nutt.) Zygadene. "Alkali-Grass."

Common, often abundant, throughout the west part of the state; frequent eastward to the upper Mississippi river, Sauk Center, and Nicollet and Steele counties; rare farther east in Benton county, at Minneapolis, Castle Rock, Dakota county, Cannon River Falls, Goodhue county, and lake Pepin.

VERATRUM, Tourn. FALSE HELLEBORE.

V. viride, Ait. American White Hellebore. Indian Poke.

Stearns county, *Garrison*. Infrequent. North.

TOFIELDIA, Hudson. FALSE ASPHODEL.**T. palustris**, Hudson. False Asphodel.

Isle Royale and Thunder bay; doubtless also on the north shore of lake Superior in Minnesota.

T. glutinosa, Willd. False Asphodel.Stillwater, *Parry*; Minneapolis, *Roberts*, *Miss Butler*; Fergus Falls, *Leonard*; common in the Red river valley, *Upham*.**UVULARIA**, L. BELLWORT.**U. grandiflora**, Smith. Large-flowered Bellwort.

Common, or frequent, through the south half of the state and in the Red river valley,

U. perfoliata, L. Mealy Bellwort.Frequent in the south half of the state; extending north at least to St. Croix Falls, *Miss Field*, Stearns county, *Campbell*, and the Sisseton Agency, Dakota, *Upham*.**OAKESIA**, Watson. BELLWORT. OAKESIA.**O. sessilifolia**, Watson. (*Uvularia sessilifolia*, L.) Sessile-leaved Bellwort.Throughout the state. Morrison county, *Miss Babbitt*; Stearns county, *Campbell*; Fergus Falls, *Leonard*; Anoka county, etc., *Upham*; Minneapolis, *Twining*, *Roberts*; Saint Paul, *Miss Cathcart*; Northfield, Rice county, *Chaney*. [Manitoba, *Macoun*; Nebraska, *Aughey*.]**STREPTOPUS**, Michx. TWISTED-STALK.**S. amplexifolius**, DC. Twisted-Stalk.North of lake Superior, *Juni*; Taylor's Falls, *Miss Cathcart*; bluffs near (south of) Saint Paul, *Mrs. Terry*. Rare. North.**S. roseus**, Michx. Twisted-Stalk.Common north of lake Superior, *Roberts*; Benton county, *Upham*; bluffs south of Saint Paul, *Mrs. Terry*. North.**CLINTONIA**, Raf. CLINTONIA.**C. borealis**, Raf. Northern Clintonia.Abundant northeastward; extending west to the Winnipeg valley, *Watson*, the sources of the Mississippi, *Houghton*, and Wadena county, *Upham*; and south to Kanabec county (common), Stearns county, *Campbell*, Minneapolis (rare), *Roberts*, Saint Paul, *Miss Cathcart*, and the Wisconsin side of lake Pepin, *Mrs. Ray*.**SMILACINA**, Desf. FALSE SOLOMON'S SEAL.**S. racemosa**, Desf. False Spikenard. False Solomon's Seal.

Common, or frequent, throughout the state.

S. stellata, Desf. False Solomon's Seal.

Also common, or frequent, throughout the state.

S. trifolia, Desf. Three-leaved False Solomon's Seal.Frequent through the north half of the state; extending south at least to Minneapolis, *Roberts*, and Fergus Falls, *Leonard*.**MAIANTHEMUM**, Weber. FALSE SOLOMON'S SEAL.**M. Canadensis**, Desf. (*Smilacina bifolia*, Ker., var. *Canadensis*, Gray.) Two-leaved False Solomon's Seal.

Common throughout the state.

POLYGONATUM, Tourn. SOLOMON'S SEAL.**P. biflorum**, Ell. Smaller Solomon's Seal.Frequent, occasionally common, throughout most of the state; extending north to lake Superior, *Whitney*, and *Pembina*, *Havard*.**P. giganteum**, Dietrich. Great Solomon's Seal.Frequent, or common, throughout the state. (*Mr. Lewis Foote* remarks that these species are not separable in their varying forms, but seem to constitute a single polymorphous species.)**ASPARAGUS**, L. ASPARAGUS.**A. officinalis**, L. Garden Asparagus.

Adventive: Minneapolis; Cannon River Falls; lake Pepin; Blue Earth county; New Ulm.

LILIUM, L. LILY.**L. Philadelphicum**, L. Wild Orange-red Lily.

Generally common, or frequent, throughout the state; especially in Sherburne and Todd counties, in the Red river valley, and thence south to Iowa.

L. Canadense, L. Nodding Wild Yellow Lily.

Common throughout the east half of the state; less frequent in the Red river valley; rare southwestward.

L. superbum, L. Turk's-cap Lily. "Wild Tiger-Lily."Upper Mississippi river, *Garrison*; Minneapolis, *Twining*, *Simmons*; Excelsior, Hennepin county, *Mrs. Terry*; Nicollet county, *Aiton*; Martin county, *Gedge*; Cannon River Falls, *Blake*, *Sandberg*; lake Pepin, *Miss Manning*; Hesper, Iowa, *Mrs. Carter*. Infrequent. South.**ERYTHRONIUM**, L. ADDER'S-TONGUE. DOG'S-TOOTH VIOLET.**E. Americanum**, Smith. Yellow Adder's-tongue or Dog's-tooth Violet.Saint Paul, *Miss Catheart*; Lake City, *Mrs. Ray*; Winona, *Holzinger*; plentiful locally near Hesper, Iowa, *Mrs. Carter*; Blue Earth county, *Leiberg*. [Lake Superior, *Whitney*; Nebraska, *Aughey*.] Infrequent. East and south.**E. albidum**, Nutt. White Adder's-tongue or Dog's-tooth Violet.Common, often abundant, southeastward; less frequent, or rare, southwestward; extending north to St. Croix Falls, *Miss Field*, Stearns county, *Campbell*, and Brown county, *Juni*.**E. propullans**, Gray.* Adder's-tongue. Dog's-tooth Violet.Faribault (abundant), *Miss Beane*; described and figured by *Professor Gray* in the *American Naturalist*, vol. v, pp. 298-300, July, 1871, from specimens "collected at Faribault, Minnesota, by *Mrs. Mary B. Hedges*, the teacher of botany in St. Mary's Hall."

***ERYTHRONIUM PROPULLANS**, Gray. The flower is much smaller than that of any other known species, being barely half an inch long; and its color, a bright pink or rose, like that of the European *E. Dens-Canis*, reflects the meaning of the generic name (viz., red), which is lost to us in our two familiar Adder-tongues, one with yellow, the other with white, blossoms. The most singular peculiarity of the new species is found in the way in which the bulb propagates. In *E. Dens-Canis* new bulbs are produced directly from the side of the old one, on which they are sessile, so that the plant as it multiplies forms close clumps. In our *E. Americanum* long and slender off-shoots, or subterranean runners, proceed from the base of the parent bulb and develop the new bulb at their distant apex. Our western *E. albidum* does not differ in this respect. In the new species an off-shoot springs from the ascending slender stem, or sub-

CAMASSIA, Lindl. QUAMASH.

C. Fraseri, Torr. (*Scilla Fraseri*, Gray.) Eastern Quamash. Wild Hyacinth.
Blue Earth county, *Leiberg*; Martin county, *Cratty*. South.

ALLIUM, L. ONION. GARLIC.

A. tricoccum, Ait. Wild Leek.

Throughout the state, excepting perhaps far northward; but mostly infrequent or rare. Minnesota and St. Croix rivers, *Parry*; upper Mississippi river, *Garrison*; Ferguson Falls, *Leonard*; Minneapolis, *W. H. Hatch, Roberts*; Goodhue county, *Sandberg*; Blue Earth county, *Leiberg*; New Ulm, *Juni*; Martin and Nobles counties, *Gedge*. [Emmet county, Iowa (very rare), *Cratty*; lake Superior, *Whitney*]

A. cernuum, Roth. Wild Onion.

Common throughout the prairie portion of the state; also found at the lake of the Woods, *Dawson*. (The umbel is reflexed until flowering, but then usually becomes erect.)

A. stellatum, Fras. Wild Onion.

Upper Minnesota river, *Geyer*; *Tracy*, Lyon county, *Gedge*; Minneapolis, *Griswold*; lake Pepin, *Miss Manning*; Stearns county, *Garrison*; Alexandria, *Mrs. Terry*. Rare.

A. reticulatum, Fras.* Wild Onion.

Red river valley, *Scott*, determined by *Mr. Sereno Watson*. West.

A. Schoenoprasum, L. Chives.

Northeastward, *Clark*; Stearns county, *Mrs. Blaisdell*; upper Mississippi river, *Garrison*. [Manitoba, *Macoun*.] North.

A. Canadense, Kalm. Wild Garlic.

Common or frequent, through the south part of the state: extending west to Worthington, *Foote*, and Pipestone county, *Mrs. Bennett*, and north to Minneapolis and Big Stone lake, *Upham*.

JUNCACEÆ. RUSH FAMILY.

LUZULA, DC. Wood-Rush.

L. pilosa, Willd. Wood-Rush.

Lake Pepin, *Miss Manning*. [Manitoba, *Macoun*.] Probably common northward.

terrenean sheathed portion of the scape (which is commonly five or six inches long), remote from the parent bulb, usually about mid-way between it and the bases or apparent insertion of the pair of leaves: this lateral offshoot grows downward, sometimes lengthening as in the foregoing species, sometimes remaining short, and its apex dilates into the new bulb. . . . Scape bulbiferous from its sheathed portion below the developed leaves; these oblong-lanceolate, acuminate, slightly mottled; perianth rose-purple or pink (half an inch long); the segments acute, all with a yellow spot but plane at the base, the inner like the outer destitute of either groove or tooth-like appendages, but a little more narrowed at base; anthers merely oblong; style hardly at all narrowed downward, entire, the small stigma even barely three-lobed; ovules few (4 to 6) in each cell. *Gray* in *American Naturalist*, vol. v.

***ALLIUM RETICULATUM**, Fras. Coats densely fibrous; scape 3 to 8 inches high, subterete; leaves very narrowly linear, elongated; spathe usually 2-valved; umbel many-flowered, spreading: pedicels usually short (2 to 6 lines long); stamens and style shorter than the usually acute (3 to 4 lines long) white or slightly pinkish sepals; crest mostly short. *Watson's Revision of Allium* in *King's Expl. of the Fortieth Parallel*, and his *Revision of the North American Liliaceæ*, *Proc. Amer. Acad.*, xiv.

L. spadicea, DC., var. **melanocarpa**, Meyer. (*L. parviflora*, Desv., var. *melanocarpa*, Gray.) Wood-Rush.

Frequent along the northern boundary of Minnesota, *Macoun*.

L. campestris, DC. Wood-Rush.

Throughout the state. Upper Mississippi river, *Garrison*; Anoka county, etc. *Upham*; lake Pepin, *Miss Manning*; Emmet county, Iowa (very rare), *Cratty*.

JUNCUS, L. Rush. Bog-Rush.

J. effusus, L. Common or Soft Rush.

Throughout the state. *Lapham*. Lake Pepin, *Miss Manning*. [North of lake Superior, *Agassiz*; Manitoba, *Macoun*.]

J. filiformis, L. Bog-Rush.

Lapham. Lake Pepin, *Miss Manning*. [Manitoba, *Macoun*; Nebraska, *Aughey*.] Throughout the state, chiefly northward.

J. Balticus, Dethard. Bog-Rush.

Lapham. Pembina, *Chickering*; Red river country generally, *Dawson*. [North of lake Superior, *Agassiz*; Emmet county, Iowa (rare), *Cratty*.] Throughout the state, chiefly northward.

J. Balticus, Dethard, var. **montanus**, Engelm.* Bog-Rush.

Lake of the Woods, *Dawson*, *Macoun*. West.

J. bufonius, L. Bog-Rush.

Lake Pepin, *Miss Manning*; lake of the Woods, *Macoun*. [James river, Dakota, *Geyer*.] Infrequent.

[*J. stygius*, L., and *J. Gerardi*, Loisel, should be looked for in Minnesota north of lake Superior.]

J. tenuis, Willd. Bog-Rush.

Common, or abundant, throughout the state.

J. tenuis, Willd., var. **congestus**, Engelm. Bog-Rush.

Blue Earth county, *Leiberg*, determined by *Watson*. Southwest. [Branches contracted into a head, and flowers darker-colored. *Engelmann*, *Trans. Acad. Sci., Saint Louis*, vol. ii.]

J. Vaseyi, Engelm. Vasey's Bog-Rush.

Steele county, *Upham*; lake Superior and Manitoba, *Macoun*; probably occurring throughout Minnesota.

J. pelocarpus, E. Meyer. Bog-Rush.

Lapham. St. Croix river, *Parry*; lake Pepin, *Miss Manning*.

J. alpinus, Villars, var. **insignis**, Fries. Bog-Rush.

North shore of lake Superior, *Juni*; lake of the Woods, *Dawson*, *Macoun*. North.

J. acuminatus, Michx., var. **legitimus**, Engelm. Bog-Rush.

Lapham. [North of lake Superior, *Agassiz*; Manitoba, *Macoun*; Devil's lake, Dakota, *Geyer*.] Throughout the state.

* **JUNCUS BALICUS**, Dethard, var. **MONTANUS**, Engelmann. Sepals nearly of the same length, the minor ones sometimes more obtuse; anthers four times longer than the filament; capsule ovate-pyramidal, angled, beaked; seeds smaller, narrower and longer pointed than in the eastern form. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

J. nodosus, L. Bog-Rush.

Common throughout the state.

J. nodosus, L., var. **megacephalus**, Torr. Bog-Rush.

Common in Martin county, and in Emmet county, Iowa, *Cratty*; Manitoba, *Macoun*; probably throughout the state.

J. Canadensis, J. Gay, var. **longicaudatus**, Engelm. Bog-Rush.

Minneapolis, *Simmons*; Blue Earth county, *Leiberg*. Through the south part of the state.

J. Canadensis, J. Gay, var. **coaretatus**, Engelm. Bog-Rush.

North of lake Superior, *Juni*. [Manitoba, *Macoun*.] North.

PONTEDERIACEÆ. PICKEREL-WEEDE FAMILY.

PONTEDERIA, L. PICKEREL-WEEDE.

P. cordata, L. Pickerel-Weed.

Lake Pepin, *Miss Manning*; White Bear lake, Ramsey county, *Simmons*, *Kelley*; lake Minnetonka, also in Douglas county, *Mrs. Terry*; pond in section 23, Burns, Anoka county, *Roberts*; Stearns county, *Campbell*. Infrequent.

SCHOLLERA, Schreber. WATER STAR-GRASS.

S. graminifolia, Willd. Water Star-grass.

White Bear lake, Ramsey county, *Simmons*; lake Minnetonka, *Roberts*, *Miss Butler*; Blue Earth county, *Leiberg*. South.

COMMELYNACEÆ. SPIDERWORT FAMILY.

TRADESCANTIA, L. SPIDERWORT.

T. Virginica, L. Common Spiderwort.

Common, often abundant, through the south half of the state; extending northeast to the upper Mississippi river, and north to lake Winnipeg, *Watson*. Southwestward the flowers are often seen varying from the ordinary blue to purple and pink.

XYRIDACEÆ. YELLOW-EYED-GRASS FAMILY.

XYRIS, L. YELLOW-EYED GRASS.

X. flexuosa, Muhl. Yellow-eyed Grass.

Sandy lake, about three miles north of East Minneapolis, *Roberts*; also collected near Minneapolis by *Mr. Kassube*; White Bear, Ramsey county, *Miss Field*. Rare.

ERIOCAULONACEÆ. PIPEWORT FAMILY.

ERIOCAULON, L. PIPEWORT.

E. septangulare, With. Pipewort.

Lake Agnes, Alexandria, Douglas county, *Mrs. Terry*. Rare.

CYPERACEÆ. SEDGE FAMILY.

CYPERUS, L. GALINGALE.

C. diandrus, Torr., var. **castaneus**, Torr. (*C. rivularis*, Kunth.) Galingale.

Common through the south half of the state; extending north at least to the upper Mississippi river, *Garrison*.

C. erythrorrhizos, Muhl. Galingale.

Lapham. [In Michigan, Wisconsin and Nebraska.] Infrequent. South.

C. aristatus, Rottb. (*C. inflexus*, Muhl.) Galingale.

St. Croix river, *Parry*; Minneapolis, *Kassube*, *Simmons*; Blue Earth county, *Leiberg*. [Manitoba, *Macoun*, (lake Winnipeg) *Watson*; Emmet county, Iowa (rare), *Cratty*.] Throughout the state.

C. esculentus, L. (*C. phymatodes*, Muhl.) Galingale. Nut-Grass.

Lapham. Blue Earth county, *Leiberg*; Cannon River Falls, *Blake*, *Sandberg*; Minneapolis, *Simmons*. South.

C. strigosus, L. Galingale.

Common throughout the state, excepting perhaps northeastward. (Specimens apparently referable to this species, collected by *Mr. Simmons* near lake Calhoun, in Minneapolis, have only 8- to 12-flowered spikes, scarcely a half inch long, arranged in densely crowded spicate clusters, the lower portions of which are sometimes compound.)

C. Michauxianus, Schultes. Galignale.

Lapham. Blue Earth county, *Leiberg*. Probably frequent, or common, through the south part of the state.

C. Schweinitzii, Torr. Galingale.

Throughout the south half of the state and in the Red river valley. Sandy ridges, St. Croix river, *Parry*; Minneapolis (common), *Kassube*, *Upham*; Blue Earth county, *Leiberg*. [Emmet county, Iowa (very rare) *Cratty*; Devil's lake, Dakota, *Geyer*.]

C. filieulmis, Vahl. Galingale.

Common, or frequent, throughout the state, excepting perhaps northeastward. Upper Mississippi river, *Houghton*; Minnesota river, *Parry*; Minneapolis, *Kassube*, *Simmons*, *Upham*; Blue Earth county, *Leiberg*. [Manitoba, *Macoun*.]

DULICHIUM, Richard. DULICHIUM.

D. spathaceum, Pers. Dulichium.

Common, or frequent, throughout the state.

HEMICARPHA, Nees. HEMICARPHA.

H. subsquarrosa, Nees. Hemicarpha.

Lapham. Blue Earth county, *Leiberg*; Minneapolis, plentiful beside railroad near the University, *Arthur*, and near lake Calhoun, *Simmons*; probably frequent through the south half of the state.

ELEOCHARIS, R. Br. SPIKE-RUSH.

E. obtusa, Schultes. Spike-Rush.

Common through the south half of the state and in the Red river valley.

E. palustris, R. Br. Spike-Rush.

Common throughout the state.

E. palustris, R. Br., var. **glaucescens**, Gray. Spike-Rush.
Minneapolis, *Kassabe*.

E. compressa, Sullivant. Spike-Rush.
Blue Earth county, *Leiberg*. [Emmet county, Iowa (rare), *Cratty*.] South.

E. intermedia, Schultes. Spike-Rush.
Lapham. Blue Earth county, *Leiberg*. Probably throughout the state.

E. tenuis, Schultes. Spike-rush.
Lapham. Blue Earth county (frequent in peat-bogs), *Leiberg*. [Devil's lake, Dakota, *Geyer*.]

E. acicularis, R. Br. Spike-Rush.
Common throughout the state.

E. Wolfii,* Gray. Wolf's Spike-Rush.
Collected by *Mr. R. I. Cratty* on wet prairies in Emmet county, Iowa, adjoining the south line of Martin and Jackson counties in Minnesota, where it may also be confidently looked for; determined by *Mr. William Boott*.

E. pauciflora, Watson. (*Scirpus pauciflorus*, Lightfoot.) Spike-Rush.
Lake Superior and lake of the Woods, *Macoun*. North.

SCIRPUS, L. BULRUSH or CLUB-RUSH.

S. cæspitosus, L. Bulrush or Club-Rush.
North and northwest of lake Superior, *Macoun*; doubtless in northern Minnesota.

S. pungens, Vahl. Bulrush.
Common throughout the state, excepting perhaps northeastward.

S. Torreyi, Olney. Torrey's Bulrush.
Lapham. Infrequent.

S. lacustris, L. (*S. validus*, Vahl.) Great Bulrush. "Black Rush."
["Tule" in California (*S. lacustris*, L., var. *occidentalis*, Watson).]
Abundant throughout the state. "In common use among the Indians for making mats." *Parry*.

S. debilis, Pursh. Bulrush.
Lapham. [Also in the Wisconsin catalogue, probably on *Dr. Lapham's* authority; and in Nebraska, *Aughey*.]
[*S. maritimus*, L., was collected by *Geyer* at Devil's lake and on the Sheyenne and James rivers, in Dakota. It will probably be found in the Red river valley in Minnesota.]

S. fluviatilis, Gray. River Club-Rush.
Through the south half of the state, and in the Red river valley. Minneapolis, *Roberts*; Blue Earth county, *Leiberg*; Emmet county, Iowa (common), *Cratty*; Pembina, *Chickering*.

***ELEOCHARIS WOLFII**, Gray. Rhizomes very small, creeping, perennial, forming small scattered tufts; culm a foot high, slender, pale-glaucous, striate, two-edged, one side flat, the other convex; sheath obliquely truncate, hyaline above: spike ovate-oblong, acute; scales oblong-ovate, obtuse, scarious, pale purple; style 3-parted; achene pyriform, shining, having about 9 nearly equidistant obtuse ribs, with transverse wrinkles between; tubercle small, depressed, truncate, more or less apiculate; bristles of the perigynium [always?] none.—[First known from Illinois.] The spike, as to form and imbrication of the scales, is much as in *E. tenuis* and *E. acicularis*, etc.; but the achene, with its several longitudinal ribs and delicate transverse lineation, is upon the plan of *E. acicularis*. This renders the species a very peculiar and distinct one. *Gray, Proc. Amer. Acad.*, vol. x, p. 77, as translated by *Arthur, Contributions to the Flora of Iowa*, No. VI.

S. sylvaticus, L., var. **digynus**, Boeck. (*S. microcarpus*, Presl.) Bulrush.
Lapham. Pine county, etc., *Upham.*

S. atrovirens, Muhl. Bulrush.

Common throughout the state. (*Mr. Leiberg* reports in Blue Earth county, besides the type, a variety with the heads less densely clustered than usual, forming a compound panicle.)

S. polystylus, Vahl. Bulrush.

Isanti county, *Upham.* South.

S. lineatus, Michx. Bulrush.

Blue Earth county, *Leiberg*; Minneapolis, *Simmons.* South.

S. Eriophorum, Michx. Wool-Grass.

Frequent throughout the state, excepting perhaps southwestward. Blue Earth county, *Leiberg*; Minneapolis, *Simmons*, *Kassabe*; Todd county, etc., *Upham*; lake of the Woods, *Dawson*, *Macoun*. [North of lake Superior, *Agassiz*.]

ERIOPHORUM, L. COTTON-GRASS.

E. alpinum, L. Alpine Cotton-Grass.

North of lake Superior, *Juni.*

E. vaginatum, L. Sheathed Cotton-Grass.

Throughout the state, excepting far southward. Blue Earth county, *Leiberg*; Minneapolis, *Kassabe*; Anoka county, *Juni*; Chisago county (frequent), *Upham*. [Manitoba, *Macoun*.]

[*E. Virginicum*, L., doubtless will be found in this state, but has not yet been reported. It occurs in Wisconsin, Nebraska and Manitoba.]

E. polystachyum, L. Many-stemmed Cotton-Grass.

Common, or frequent, through the south half of the state, and perhaps farther north. Anoka county, *Juni*; Minneapolis, *Herrick*, *Simmons*; Blue Earth county, *Leiberg*; Emmet county, Iowa (common), *Cratty*. It has been noted in its var. *ANGUSTIFOLIUM*, Gray, at Minneapolis, *Kassabe*, and in Steele county, *Upham*.

E. polystachyum, L., var. **latifolium**, Gray. Cotton-Grass.

Minneapolis, *Upham*; and probably extending, with the var. *angustifolium*, through the south half of the state.

E. gracile, Koch, var. **paucinervium**, Engelm. Graceful Cotton-Grass.

Throughout the state. Chisago county (frequent), and Sherburne county, *Upham*; Minneapolis, *Simmons*; Blue Earth county, *Leiberg*. [Manitoba, *Macoun*; Emmet county, Iowa (rare), *Cratty*.]

FIMBRISTYLIS, Vahl. FIMBRISTYLIS.

F. capillaris, Gray. Fimbristylis.

Lapham. Infrequent. South.

RHYNCHOSPORA, Vahl. BEAK-RUSH.

R. alba, Vahl. Beak-Rush

Lapham. Infrequent. South.

R. capillacea, Torr. Beak-Rush.

Blue Earth county, *Leiberg.* Infrequent. South.

[*Cladium mariscoides*, Torr., should be looked for in southern Minnesota.]

SCLERIA, L. NUT-RUSH.**S. triglomerata**, Michx. Nut-Rush.*Lapham.* Infrequent. South.**S. verticillata**, Muhl. Nut-Rush.Blue Earth county, *Leiberg.* Rare. South.**CAREX, L.** SEDGE.**C. scirpoidea**, Michx. Sedge.Port Arthur, and "northwest angle" of the Lake of the Woods, *Macoun.* North.**C. polytrichoides**, Muhl. Sedge.Little Marais, lake Superior, *Juni.* Probably common throughout the state.**C. Backii**, Boott. Back's Sedge.Minneapolis, *Juni.* North.**C. siccata**, Dew. Sedge.Throughout the state, but infrequent. *Lapham.* Minneapolis, *Kassabe;* Emmet county, Iowa (very rare), *Cratty.***C. disticha**, Huds. Sedge.Throughout the state. Minneapolis, *Juni, Kassabe;* Emmet county, Iowa (common) *Cratty.***C. teretiuscula**, Good. Sedge.Throughout the state. Minneapolis, *Juni;* Blue Earth county, *Leiberg.***C. teretiuscula**, Good., var. **ramosa**, Boott.* Sedge.Emmet county, Iowa (frequent), *Cratty;* doubtless also in Minnesota.**C. vulpinoidea**, Michx. Sedge.Common throughout the state. Minneapolis, *Juni;* Blue Earth county, *Leiberg.* common in Martin county, and in Emmet county, Iowa, *Cratty.***C. crus-corvi**, Shuttleworth. Sedge.Blue Earth county, *Leiberg.* South.**C. stipata**, Muhl. Sedge.Common throughout the state. Moose Lake, Carlton county, *Juni;* Blue Earth county, *Leiberg.***C. conjuncta**, Boott. Sedge.Minneapolis, *Juni, Kassabe.* Southeast.**C. Douglasii**, Boott.† Douglas's Sedge.Red river (open prairie); "this is the first Carex to appear in flower, and occurs very abundantly all over the prairie of the Red river," *Dawson, Macoun.* West.

**CAREX TERETIUSCULA*, Good., var. *RAMOSA*, Boott. (*C. prairiea*, Dew.) Spike below branched; spikelets ovate, sessile, 5 to 7 on a branch; perigynium ovate-lanceolate, convex both sides, scabrous on the margin, slightly bifid, smaller than the ovate-lanceolate glume; stem 2 to 3 feet high, leafy towards the base. *Wood's Class-Book.*

†*CAREX DOUGLASII*, Boott. Spike dioecious, with about twelve, sometimes more, ovate spikelets, the upper closely aggregated, the lower occasionally remote and compound; bracts sometimes setaceous, broad at base, sometimes scale-like and mucronate; style exerted; stigmas 2, very long; perigynium elliptic-lanceolate or ovate, tapering to a long serrated bifid beak, shorter than the lanceolate acute scale; achene orbicular. Root creeping; culm 6 to 12 inches high. *Olney in Bot. Rep. of King's Expl. of the Fortieth Parallel.*

C. marcida, Boott.* Sedge.Red river (open prairie swamp), *Dawson, Macoun.* West.**C. cephaloidea**, Boott. Sedge.Throughout the state, excepting perhaps northeastward. Frequent in Martin county, and in Emmet county, Iowa, *Cratty*; swamps, "northwest angle" of lake of the Woods, *Macoun*.**C. cephalophora**, Muhl. Sedge.Common, or frequent, through the south part of the state. Blue Earth county, *Leiberg*.**C. Muhlenbergii**, Schk. Sedge.*Lapham, Chaska, Carver county, Juni.* Rare. South.**C. rosea**, Schk. Sedge.Common, or frequent, throughout the state. Red river (swamp), *Dawson, Macoun*; Minneapolis, *Juni, Kassabe*; Blue Earth county, *Leiberg*; Hesper, Iowa (frequent), *Mrs. Carter*; Martin county, and Emmet county, Iowa (common), *Cratty*.**C. chordorhiza**, Ehrh. Sedge.Throughout the state, but infrequent. [North of lake Superior (at Fort William), *Macoun*; Emmet county, Iowa, *Arthur*.]**C. tenella**, Schk. Sedge.Throughout the state, excepting far southward. Minneapolis, *Juni, Kassabe*.**C. trisperma**, Dew. Sedge.Range like the last. Put in bay, lake Superior, *Juni*.**C. tenuiflora**, Wahl. Sedge.Range like the two preceding. Minneapolis, *Juni, Herrick*.**C. canescens**, L. Sedge.Throughout the state: common northward, less frequent southward. Blue Earth county, *Leiberg*.**C. canescens**, L., var. **alpicola**, Wahl. (var. *vitilis*, Carey.) Sedge.Agate bay, lake Superior, *Juni*. North.**C. arcta**, Boott.† Sedge.Lake Superior, Rainy lake, and lake of the Woods, *Richardson, Boott.* North.

**CAREX MARCIDA*, Boott. Spike oblong, pale, composed of numerous small ovate aggregated androgynous spikelets, staminate at top, the lower spikelets compound; stigmas 2; perigynium tawny, suborbicular, or ovate tapering to a bifid beak, plano-convex, nerved, winged, the upper margins serrated, short-stipitate, nearly equal to the acute ovate scale, which is of a pale straw-color, with a white membranous margin; achene tawny, lenticular, contracted at base. Culm 1 to 2 feet high, rigid; leaves broad, linear, erect. *Olney in Bot. Rep. of King's Expl. of the Fortieth Parallel.*

†*CAREX ARCTA*, Boott. Spike oblong, capitate, pale, of 8 to 14 spikelets, which are oblong and obtuse, androgynous, at the base sparingly staminate, many-flowered, closely crowded, the lower bracteate; bracts bristle-shaped, dilated at the base, longer than the spikelets; stigmas 2; perigynia ovate, acuminate-beaked, with the minute orifice emarginate and deeply cleft on the outer side, serrate above on the sharp margins, on the outer side slightly nerved, on the inner more sparingly or obsoletely nerved, spreading, pale-green, at length becoming rusty above, membranaceous, at the base thickly spongy; longer than (and as broad as) the scale, which is ovate, acute and mucronulate, whitish or rusty-colored, with a greenish margin and a green mid-nerve.

. . . Culm somewhat less than a foot high, sharply triangular, rather stout, upwardly roughish, leaved at the base. Leaves 1 to 1½ lines wide, flat, with a prolonged-tapering tip, longer (often much) than the culm. Bracts at their base broadly dilated, bristle-

C. Deweyana, Schw. Sedge.

Throughout the state. Agate bay, lake Superior, *Juni*; Spirit Lake, Iowa, *Arthur*.

C. echinata, Murr. (C. stellulata, Good.) Sedge.

Throughout the state. North of lake Superior, *Agassiz*; Manitoba, *Macoun*; Emmet county, Iowa, *Cratty*, *Arthur*.

C. echinata, Murr., var. **microcarpa**, Boeck. (C. stellulata, Good., var. *scirpoidea*, Carey.) Sedge.

Minneapolis, *Juni*, *Kassabe*; Emmet county, Iowa (frequent), *Cratty*.

C. arida, Schw. & Torr. Sedge.

Throughout the state, but infrequent. [Near Winnipeg, Manitoba, *Macoun*; upper Missouri river, *Geyer*.]

C. scoparia, Schk. Sedge.

Common throughout the state. Minneapolis, *Juni*; Blue Earth county, *Leiberg*.

C. lagopodioides, Schk. Sedge.

Common, or frequent, throughout the state. *Lapham*. Savannah river, *Houghton*; Agate bay, lake Superior, *Juni*.

C. cristata, Schw. Sedge.

Throughout the state, excepting perhaps northeastward. Blue Earth county, *Leiberg*; Emmet county, Iowa (rare), *Cratty*.

C. adusta, Boott. Sedge.

Throughout the state, but rare. Red river valley, at Pembina, *Dawson*; Minneapolis, *Kassabe*.

C. straminea, Schk. (Including vars. *typica*, *tenera*, *aperta* and *festucacea*, Boott.) Sedge.

Throughout the state. St. Louis river, *Houghton*; Pembina, *Dawson*; Minneapolis, *Kassabe*; Blue Earth County, *Leiberg*.

C. straminea, Schk., var. **Crawei**, Boott. (vars. *hyalina* and *Meadii*, Boott.) Sedge.

Common in Emmet county, Iowa (on the southern boundary of Minnesota), *Cratty*.

C. vulgaris, Fries. Sedge.

Throughout the state, excepting perhaps far southward. Minneapolis, *Juni*; Blue Earth county, *Leiberg*.

C. aquatilis, Wahl. Sedge.

Range like the last. *Lapham*. Minneapolis, also New Ulm, *Juni*.

C. stricta, Lam. (See *Botanical Gazette* for Sept., 1884.) Sedge.

Common throughout the state. Agate bay, lake Superior, *Juni*; Red river, *Dawson*, *Macoun*; Minneapolis, *Kassabe*; Blue Earth county, *Leiberg*; plentiful in Emmet county, Iowa, *Cratty*.

C. lenticularis, Michx. Sedge.

Agate bay, lake Superior, *Juni*. North.

shaped, the lower 5 or 6 elongated, the lowest hardly equaling the spike. Spike 10 to 16 lines long, 3 to 6 lines broad. Spikelets 5 lines long, 2 to 2½ lines broad, dense flowered, at the base sparingly staminate but never narrowed below, all crowded. Scales similar. Perigynium 1.3 to 1.4 lines long, 0.6 line broad. Achenium 0.7 line long, 0.5 line broad, suborbicular, prolonged at the base, plano-convex, pale; the base of the style enlarged.—It differs from *C. canescens* and *C. vitilis* in its more numerous spikelets, in their being capitate and the lower ones bracted, and in its longer leaves. In general appearance it more nearly resembles *C. elongata*, yet in the form and nervation of the perigynium it is far different. *Boott's Illustrations of Carex*.

C. erinita, Lam. Sedge.

Throughout the state, excepting perhaps far southward. North of lake Superior, *Juni.*

C. erinita, Lam., var. **gynandra**, Schw. & Torr. (*C. gynandra*, Schw.) Sedge.

Agate bay, lake Superior, *Juni.* Rare.

C. limosa, L. Sedge.

Throughout the state, but infrequent. [North of lake Superior (at Fort William), *Macoun*; Emmet county, Iowa, *Cratty, Arthur.*]

C. Magellanica, Lam. (*C. irrigua*, Smith.) Sedge.

Throughout the state, excepting far southward, but rare. Put in bay, lake Superior, *Juni.*

C. Buxbaumii, Wahl. Sedge.

Throughout the state. Blue Earth county, *Leiberg*; Emmet county, Iowa (frequent), *Cratty.*

C. atrata, L. Sedge.

Kakabeka falls, north of lake Superior, *Macoun*; probably also in northern Minnesota.

C. alpina, Swartz. Sedge.

Temperance river, lake Superior, *Juni.* North.

C. aurea, Nutt. Sedge.

Throughout the state, excepting perhaps far southward. Lake of the Woods (thicket), *Dawson, Macoun*; Minneapolis, *Juni, Kassabe.*

[*C. aurea*, Nutt., var. *androgyna*, Olney,* collected by *Macoun* at Thunder bay, lake Superior, should be looked for in northern Minnesota.]

C. livida, Willd. Sedge.

Greenwood river, lake Superior, *Juni.* Rare. North.

C. vaginata, Tausch. Sedge.

Certainly in swamps in northern Minnesota, *Macoun.* North.

C. Meadii, Dew. Mead's Sedge.

Minneapolis, *Kassabe.* [Manitoba, *Macoun*; Iowa, *Arthur.*]

C. Meadii, Dew., var. **Bebbii**, Arthur.† Sedge.

Emmet county, Iowa, *Cratty, Arthur*; doubtless also in Minnesota.

**CAREX AUREA*, Nutt., var. *ANDROGYNNA*, Olney. Culms short, more rigid; leaves erect, broader; upper spikes more closely aggregated and denser flowered, the upper spike generally androgynous, having more or less fertile flowers at the top. *Olney* in *Bot. Rep. of King's Expl. of the Fortieth Parallel.*

†*CAREX MEADII*, Dew., var. *BEBBII* (Olney). This was published in Olney's *Carices Bor.-Amer.*, Fasc. 1, No. 22, without comments, as a variety of *C. panicaria*, L., and has never, I believe, been described. The following description will enable collectors to identify the plant:—Sterile spike with stalk two to four times its length; fertile spikes usually 2, erect, remote, slender-peduncled, rather loosely flowered; sheaths of the foliaceous bracts long and slightly inflated; perigynia and scales as in *C. Meadii*, except paler, and the former less distinctly nerved; culms slender, somewhat roughish. — Resembles *C. tetanica*, for which it is sometimes mistaken, in habit and in the loosely flowered fertile spikes, only with longer peduncles, but *C. Meadii* in the perigynia and scales; it may be merely an attenuated form of the latter. Moist prairies, Illinois, Wisconsin, and northwestwardly. *Arthur* in *Contributions to the Flora of Iowa*, No. VI.

C. Crawei, Dew. Sedge.

Blue Earth county, *Leiberg*; Emmet county, Iowa, *Cratty*, determined by Mr. William Boott. [Manitoba, *Macoun*.] Rare.

C. granularis, Muhl. Sedge.

Common throughout the state. Minneapolis, *Juni*, *Kassube*; Blue Earth county, *Leiberg*.

C. Torreyi, Tuckerman. Sedge.

Minneapolis, *Juni*, *Kassube*; Red river valley, *Macoun*. North.

C. grisea, Wahl. Sedge.

Blue Earth county, *Leiberg*; Martin county, *Cratty*.

C. Davisii, Schw. & Torr. Sedge.

Through the south part of the state. Minneapolis, *Simmons*.

C. gracillima, Schw. Sedge.

Throughout the state, excepting perhaps far southward. Minneapolis, *Juni*, *Kassube*; Blue Earth county, *Leiberg*.

C. digitalis, Willd. Sedge.

Minneapolis, *Juni*; north of lake Superior, *Agassiz*. Infrequent.

C. laxiflora, Lam. Sedge.

Common, or frequent, throughout the state. Blue Earth county, *Leiberg*.

C. laxiflora, Lam., var. **blanda**, Boott. Sedge.

Jordan, Scott county, *Juni*; Emmet county, Iowa, *Cratty*. Doubtless other varieties of this species also occur here.

C. eburnea, Boott. Sedge.

Throughout the state, excepting perhaps southwestward. Blue Earth county, *Leiberg*; Emmet county, Iowa (rare), *Cratty*.

C. pedunculata, Muhl. Sedge.

Throughout the state. Rainy lake, *Richardson*, *Boott*; Blue Earth county, *Leiberg*.

C. Emmonsii, Dew. Emmons' Sedge.

Blue Earth county, *Leiberg*. [Manitoba, *Macoun*.]

C. Pennsylvanica, Lam. Sedge.

Common throughout the state, excepting perhaps northeastward. Minneapolis, *Juni*, *Kassube*; Blue Earth county, *Leiberg*; Emmet county, Iowa (common), *Cratty*.

C. varia, Muhl. Sedge.

Lapham. Infrequent.

C. Richardsonii, R. Br. Richardson's Sedge.

Throughout the state. Minneapolis, *Juni*. (frequent) *Kassube*; Blue Earth county, *Leiberg*.

C. pubescens, Muhl. Sedge.

Through the south part of the state. Minneapolis, *Juni*, *Kassube*; Blue Earth county, *Leiberg*.

C. miliacea, Muhl. Sedge.

Range like the last. Minneapolis, *Juni*, *Kassube*.

C. arctata, Boott. Sedge.

Agate bay, lake Superior, *Juni*. Infrequent.

C. capillaris, L. Sedge.

Port Arthur, lake Superior, *Macoun*; Saskatchewan river, *Bourgeau*; probably also in northern Minnesota.

C. flexilis, Rudge. Sedge.Knife river, lake Superior, *Juni*. Rare. North.**C. Oederi**, Ehrh. Sedge.Throughout the state, excepting perhaps far southward. *Lapham*. Leech lake, *Houghton*; Rainy river and lake, *Richardson*, *Boott*.**C. filiformis**, L. Sedge.Throughout the state. Put in bay, lake Superior, *Juni*; Emmet county, Iowa (frequent), *Cratty*.**C. filiformis**, L., var. **latifolia**, Boeck. (*C. lanuginosa*, Michx.) Sedge.Throughout the state. North shore of lake Superior (frequent), and Minneapolis, *Juni*; Red river valley near Saint Vincent, *Dawson*, *Macoun*; Emmet county, Iowa (plentiful), *Cratty*.**C. Houghtonii**, Torr. Houghton's Sedge.Itasca lake (Lac la Biche), *Houghton*; Blue Earth county, *Leiberg*. [Manitoba, *Macoun*; Council Bluffs, Iowa, *Geyer*.]**C. riparia**, Curtis. Sedge.Common, or frequent, throughout the state. North of lake Superior (common), *Juni*; lake of the Woods (sandy swamp), *Dawson*, *Macoun*; Blue Earth county, *Leiberg*.**C. aristata**, R. Br. Sedge.Throughout the state, but infrequent. Pembina, *Chickering*; New Ulm, *Juni*; Blue Earth county, *Leiberg*.**C. Pseudo-Cyperus**, L., var. **comosa**, W. Boott. (*C. comosa*, Boott.) Sedge.Common, or frequent, through the south part of the state. Blue Earth county, *Leiberg*; Emmet and Dickinson counties, Iowa (frequent), *Cratty*, *Arthur*.**C. Pseudo-Cyperus**, L. Sedge.Throughout the state. Lake of the Woods (marsh), *Dawson*, *Macoun*; Chaska, Carver county, *Juni*; Spirit Lake, Iowa, *Arthur*.**C. hystricina**, Willd. Sedge.Common throughout the state, excepting perhaps far northwestward. *Lapham*. Minneapolis, *Juni*, *Kassabe*; north of lake Superior, *Agassiz*.**C. tentaculata**, Muhl. Sedge.Range like the last, but less frequent. *Lapham*. Minneapolis, *Simmons*; north of lake Superior, *Agassiz*.**C. intumescens**, Rudge. Sedge.Common throughout the state. Lake of the Woods and Rainy lake, *Richardson*, *Boott*; north of lake Superior (common), also New Ulm, *Juni*.**C. lupulina**, Muhl. Sedge.Blue Earth county, *Leiberg*; Minneapolis, *Simmons*. [Manitoba, *Macoun*.]**C. squarrosa**, L. Sedge.Wabasha, *Gibson*, determined by *Arthur*. South.**C. retrorsa**, Schw. Sedge.Throughout the state. Lake of the Woods, *Richardson*, *Boott*; Moose Lake, Carlton county, *Juni*; Blue Earth county, *Leiberg*; Emmet county, Iowa, *Cratty*.**C. utriculata**, Boott. Sedge.Throughout the state, excepting far southward. Red river prairie, *Dawson*, *Macoun*.**C. monile**, Tuckerman. Sedge.North of lake Superior, *Juni*; Emmet county, Iowa (frequent), *Cratty*.

C. oligosperma, Michx. Sedge.Agate bay, lake Superior *Juni*. Infrequent. North.**C. saxatilis**, L. var. **miliaris**, Bailey. (*C. miliaris*, Michx. *C. rotundata*, Wahl.?, in *Manual*.) Sedge.Collected in Minnesota by Dr. J. Leidy; determined by S. T. Olney. *Bot. Rep. of King's Expl. of the Fortieth Parallel*.**C. longirostris**, Torr. Sedge.Throughout the state. Minneapolis, *Juni*, *Kassabe*; Mankato (common), *Leiberg*; also common in Martin county, and in Emmet county, Iowa, *Cratty*.[A considerable number of species of *Carex* not here recorded will doubtless be added by future observers in this state, who should look for all such as approach, or are especially northern, in their geographic range, given in Gray's *Manual*.]

GRAMINEÆ. GRASS FAMILY.

LEERSIA, Swartz. WHITE GRASS. FALSE RICE.**L. Virginica**, Willd. White Grass.Ramsey and Goodhue counties, *Oestlund*; Minneapolis, *Simmons*; Blue Earth county, *Leiberg*; Emmet county, Iowa (rare), *Cratty*. South.**L. oryzoides**, Swartz. Rice Cut-grass.Common in sloughs through the south half of the state and in the Red river valley, *Juni*, *Upham*; Ramsey and Goodhue counties, *Oestlund*; Blue Earth county, *Leiberg*.**L. lenticularis**, Michx. Fly-catch Grass.*Lapham*. South.**ZIZANIA**, L. WATER or INDIAN RICE.**Z. aquatica**, L. Wild Rice. Indian Rice. Water Oats. Folie Avoine (of the French voyageurs).Common, or frequent, in favorable situations, throughout the state; sometimes attaining, in Brown county, a height of 13 feet, with leaves 4 feet long, *Juni*.

"Wild rice; *Pshu* of the Sioux; *Manomin* of the Chippewas. This aquatic grass, not uncommon in the Northern United States, acquires in the Northwest an economical importance second to no other spontaneous production. It is the only instance in this region of a native grain, occurring in sufficient quantity to supply the wants of ordinary consumption. It is particularly abundant on the lake-like expansions of rivers, towards their sources, which give such a marked feature to the distribution of these northern streams, and is so grandly illustrated in their main type, the Mississippi. It seems to select, by preference, the lower terminations of these expansions, which generally debouch by a narrowed outlet and considerable fall, constituting rapids. It is in these situations best exposed to the proper degree of inundation, and finds a suitable bed of the slimy sand, in which it grows most readily. It is rarely met with on inland lakes which have no outlet. As an article of food it is highly palatable and nutritious, being generally preferred to the commercial rice. The grain is long, slender, of a brown color. In boiling, it puffs out to a pultaceous mass, and increases its bulk several times. It flowers in August, and is ready for gathering in September, which is conveniently done in canoes, the standing stalks being bent over the sides, and the grain beaten in. Its productive fields, at this season, harbour a great number of wild fowls, which obliges those who wish to secure a full crop, to anticipate the gathering season, by tying up the standing grain into bundles, which gives at the same time a claim to the crop. When gathered it is subjected to a process of parching and thrashing, which, with the imperfect means at the command of the Indians, is the most tedious part of the business." *Parry*.

ALOPECURUS, L. FOXTAIL GRASS.**A. geniculatus, L., var. *aristulatus*, Munro. (A. aristulatus, Michx.)**

Wild Foxtail.

Common, or frequent, throughout the state.

PHLEUM, L. CAT'S-TAIL GRASS.**P. pratense, L. *Timothy. Herd's-Grass* (of New England).**

Commonly cultivated, often spontaneous, throughout the state.

SPOROBOLUS, R. Br. (Including VILFA, Beauv.) DROP-SEED
GRASS. RUSH-GRASS.**S. asper, Kunth. (Vilfa aspera, Beauv.)** Rush-Grass.*Lapham.* New Ulm, Juni. South.**S. vaginæflorus, Torr. (V. vaginæflora, Torr.)** Rush-Grass.*Lapham.* Minneapolis (sandy bottomland of the Mississippi river), *Oestlund*; Emmet county, Iowa (frequent), *Cratty.* South.**S. cuspidatus, Torr. (V. cuspidata, Torr.)** Rush-Grass.*Lapham.* Hennepin and Goodhue counties, *Oestlund*; Emmet county, Iowa (rare), *Cratty.* [Devil's lake, and southern Dakota, *Geyer*; Manitoba, *Macoun.*]**S. depauperatus, Torr.* (V. depauperata, Torr.)** Rush-Grass.Red river valley, at Pembina, *Havard.* West.**S. junceus, Kunth.** Drop-seed Grass.*Lapham.* New Ulm, Juni. Rare. South.**S. heterolepis, Gray.** Drop-seed Grass.Throughout the state, excepting perhaps northeastward. Ramsey county, *Oestlund*; Blue Earth county, *Leiberg*; common in Emmet county, Iowa, *Cratty.* [Eastern Nebraska (abundant), *Aughey*; Manitoba, *Macoun.*]**S. cryptandrus, Gray.** Drop-seed Grass.Through the south part of the state. Ramsey county, *Oestlund*; Minneapolis, *Simmons*, *Upham*, *Dr. Vasey*; Emmet county, Iowa (rare), *Cratty*; Spirit lake and Little Sioux river, *Geyer*.**AGROSTIS, L. BENT-GRASS.****A. perennans, Tuckerman.** Thin-Grass.Throughout the state, excepting perhaps northeastward. *Lapham.* Minneapolis, *Upham*; Pembina, *Havard.***A. scabra, Willd.** Hair-Grass.

Common, or frequent, throughout the state.

**SPOROBOLUS DEPAUPERATUS*, Torr. Root perennial, creeping; culms ascending, appressed-branched, slender, often geniculate, glabrous, striate, rather rigid, $\frac{1}{2}$ to 2 feet long; leaves 1 to 3 inches long, narrow and usually convolute, spreading or recurved; panicle very slender and contracted, 1 to 3 inches long; compound or often nearly simple; spikelets small; glumes unequal, ovate, obtuse or acutish, membranous, two-thirds the length of the acute lower palet, which is more or less obscurely 3-nerved.—Resembling *V. cuspidata*, and scarcely differing except in the shorter obtuse glumes of the rather smaller flowers. Lower palet a little more than 1 line long, glabrous or slightly scabrous on the midnerve, the upper one obtuse or erose at the summit. *Watson's Rep.* in *King's Expl. of the Fortieth Parallel.*

A. canina, L. Brown Bent-Grass.

Pipestone county, *Leiberg*. Rare.

A. vulgaris, With. Red-top. Herd's-Grass (of Pennsylvania, &c.)

Probably native northward; also much cultivated, and thence often spontaneous, throughout the state. (According to *Dr. George Thurber*, in the *Botany of California*, this should be called a variety of *A. alba*, L.)

A. vulgaris, With., var. **alba**, Vasey. (*A. alba*, L.) Fiorin. White Bent-Grass.

Ramsey county, *Oestlund*; Red Wing, *Sandberg*; Blue Earth county, *Leiberg*; New Ulm, *Juni*. [Lake Superior, *Whitney*.]

CINNA, L. WOOD REED-GRASS.

C. arundinacea, L. Wood Reed-Grass.

Throughout the state. *Lapham*. Upper Mississippi river, *Houghton*; Blue Earth county, *Leiberg*.

C. pendula, Trin. (*C. arundinacea*, L., var. *pendula*, Gray.) Wood Reed-Grass.

Lake Superior and northward, Gray's *Manual*; doubtless in northern Minnesota.

MUHLENBERGIA, Schreber. DROP-SEED GRASS.

M. sobolifera, Trin. Drop-seed Grass.

Lapham. South.

M. glomerata, Trin. Drop-seed Grass.

Common, or frequent, throughout the state; not confined to wet places, but often growing on dry and even sandy ground; abundant southwestward, frequently persisting as a plentiful weed in wheat-fields and other cultivated land, *Upham*.

M. glomerata, Trin., var. **ramosa**, Vasey, ined. Drop-seed Grass.

Minneapolis (bluff of Mississippi river near the University), *Upham*; probably the prevailing form of the species in this state. [Much branched from the base upward, the lateral branches slender, naked above, very leafy; outer glumes only slightly longer to one-third longer than the flower; flowering glume sparingly villous. Minnesota, Dakota and Utah. *Letter of Dr. Vasey*, Sept. 30, 1884.]

M. Mexicana, Trin. Drop-seed Grass.

Ramsey county, *Oestlund*; Blue Earth county, and southwestward (common), *Leiberg*; Pembina, *Havard*.

M. sylvatica, Torr. & Gray. Drop-seed Grass.

Lapham. North of lake Superior, *Agassiz*. Probably throughout the state.

M. Willdenovii, Trin. Drop-seed Grass.

Through the south part of the state. *Lapham*. Blue Earth county, *Leiberg*.

M. ambigua, Torr.* Drop-seed Grass.

Stony banks of Okaman lake (lake Elysian), Waseca county, *Geyer*.

***MUHLENBERGIA AMBIGUA**, Torr. Panicle dense, opiciform; glumes rather unequal (the inferior one shorter), linear-lanceolate, very acute, 1- or 2-flowered, very hairy at the base; superior valve [palet] with a bristle at the tip equaling it in length, a little shorter than the glumes (exclusive of the awns); superior floret either perfect, and then resembling the inferior, or rudimentary and aristiform. . . . Culms caespitose, about 1½ feet high, glabrous; leaves broadly linear; stipules very short, truncate

BRACHYELYTRUM, Beauv. **BRACHYELYTRUM**.**B. aristatum**, Beauv. *Brachyelytrum*.*Lapham.* Blue Earth county, *Leiberg*.**DEYEUXIA**, Clarion. (Included in *CALAMAGROSTIS*, Gray's *Manual*.)

REED BENT-GRASS.

D. Canadensis, Beauv. *Blue-Joint*.

Common throughout the state. The principal grass of the natural meadows bordering streams in the wooded region northward, supplying an abundance of excellent hay for the logging teams of the pineries.

D. stricta, Trin. *Reed Bent-Grass*.Throughout the state. Collected in Minnesota by *Nicollet* (*Watson*); Ramsey and Hennepin counties, *Oestlund*; Minneapolis, *Simmons*; Blue Earth County, *Leiberg*; Emmet county, Iowa (common), *Cratty*; Pembina, *Havard*.**D. Lapponica**, Kunth. (*Calamagrostis Lapponica*, Trin., in *Addenda* of Gray's *Manual*.) *Reed Bent-Grass*.Isle Royale, lake Superior, *Prof. T. C. Porter*; doubtless also in northern Minnesota.**D. confinis**, Nutt. *Reed Bent-Grass*.*Lapham.* Common in Grant county and the Red River valley, *Upham*.**D. Nuttalliana**, Steud. *Reed Bent-Grass*.*Lapham.* Lake Winnibigoshish, *Houghton*; Minneapolis, *Kassabe*.**AMMOPHILA**, Host. (§§ 2 and 3, *CALAMAGROSTIS*, Gray's *Manual*.)

REED BENT-GRASS.

A. longifolia, Benth. (*C. longifolia*, Hook.) *Reed Bent-Grass*.Throughout the state. Ramsey county, *Oestlund*; Saint Paul, *Kelley*; Minneapolis, also northwestward (common on the beaches of lake Agassiz), *Upham*; Blue Earth county, *Leiberg*.**A. arundinacea**, Host. (*C. arenaria*, Roth.) *Sea Sand-Reed*.Common on southern beaches of lake Superior, *Whitney*; doubtless also on the shore of this lake in Minnesota.**ORYZOPSIS**, Michx. *MOUNTAIN RICE*.**O. melanocarpa**, Muhl. *Mountain Rice*.*Lapham.* Ramsey county, *Oestlund*; Minneapolis, *Simmons*; Blue Earth county, *Leiberg*.**O. asperifolia**, Michx. *Mountain Rice*.Throughout the state, excepting perhaps far southward. *Lapham.* Stearns county, *Garrison*; Minneapolis, *Simmons*.**O. Canadensis**, Torr. *Mountain Rice*.*Lapham.* Infrequent. Range like the last.

and lacerate; panicle 4 to 6 inches long, purplish; glumes tapering to a very acute cuspidate point, with a strong green midrib; perianth clothed at the base with whitish hairs, which are nearly half as long as the valves; valves nearly equal; awn a little tortuous, sometimes longer than the valve; superior floret often perfect, and maturing its fruit; when rudimentary, consisting of a mere awn, without any valve. A remarkable species, with the habit of *M. glomerata* and *M. Mexicana*. *Torrey* in *Nicollet's Report*.

STIPA, L. FEATHER-GRASS. WEATHER-GRASS.**S. Richardsonii**, Link. Richardson's Feather-Grass.

North shore of lake Superior, and in Manitoba, *Macoun*; doubtless reaching into Minnesota. North.

S. spartea, Trin. Porcupine Grass.

Abundant southwestward, being the principal grass of the prairie in some districts, and extending undiminished into Dakota; common north to Clay county and east to New Ulm; frequent northeast to the sources of the Mississippi, *Houghton*, and to Sherburne and Anoka counties, and in the southeast part of the state, *Upham*. (See *American Naturalist*, vol. xviii, pp. 929-931.) The grain is prolonged below in a stout callus or base, needle-like in sharpness, and above in a long twisted awn; both of which are minutely barbed, so that, when inserted in the wool of sheep or in men's clothing, the seed works forward readily but not backward. Thus this very appropriately named grass is a serious annoyance at the time of maturity and falling of the seed, which is in July. Within a few weeks later, these seeds are found to have bored into the hard, dry, clayey soil of the prairie to a depth of two or three inches, having been pushed or impelled in some way by means of the awn. Perhaps this is effected by its lengthening, while braced against the herbage above, after it had been contracted by partially coiling up, these changes being produced by alternations of dryness and moisture, as in days of sunshine and dewy nights; or, as seems more probable, it may be that the wind, blowing upon the awn, first fastens the sharp-pointed grain in the ground, and afterward slowly drills it downward. This was first brought to the notice of the writer by *Mr. T. M. Young*, at the Sisseton Agency, in Dakota, where, late in August, scarcely any seeds of this grass remained on the surface; but they were found very plentifully thus buried in the ground, often only from a half inch to one inch apart. All had penetrated to nearly the same depth, which was about two and a half inches from the surface to the point of the seed, two thirds of this depth being occupied by the lower part of the awn.

ARISTIDA, L. TRIPLE-AWNED GRASS.**A. basiramea**, Engelmann.* Triple-awned Grass.

Minneapolis (plentiful in the vicinity of the University, in the sward on dry sandy land with species of *Bouteloua*, *Poa* and *Andropogon*, from which it is noticeably distinguished by its darker purplish color), *Upham*; Saint Cloud (plentiful), *Campbell*; Pipestone City and Luverne, in southwestern Minnesota, and near Rock Rapids, Lyon county, in the northwest corner of Iowa, *Leiberg*.

It has also been collected in Nebraska by *Rev. J. H. Wibbe*, and in Kansas by *Mr. E. Hall*; and *Mr. F. L. Scribner* and *Prof. J. M. Coulter* report it from Iowa and Illinois. *Rev. J. Scott* writes that it occurs at Brandon, Manitoba. [Nebraska specimens show a much greater size (20 inches high) and a more branching habit, the culms becoming geniculate. *Vasey*.]

***ARISTIDA BASIRAMEA**, Engelmann in a letter to W. *Upham*.—Annual: culms erect, 6 to 15 inches high, slender, much branched at the base (some of the branches very short but floriferous), and with short floriferous branches enclosed in the upper leaf-sheaths: leaves comparatively long (3 to 6 inches), narrowly linear, flat, becoming involute toward the apex, sparsely hairy on the margins below, the upper ones nearly equaling the panicle; sheaths striate, loose; ligule very short, truncate: panicle 1½ to 3 inches long, erect, rather lax, its base sheathed by the upper leaf; branches of the panicle short, mostly single, the lower in twos or threes; glumes linear, unequal, 1-nerved, lower one 4 lines, upper one 6 lines long including the short bristle-like point: flowering glume nearly terete, spotted with black, about 5 lines long including the short, acute and hairy callus; middle awn about 6 lines long, the lateral ones about 4 lines long, spirally twisted below (when mature). The sheathed flowers are somewhat smaller.

This species was discovered last season by *Mr. Warren Upham*, at Minneapolis, Minn. The late Dr. Engelmann suggested the name, in a letter, as indicative of its habit, and would have published it if he had lived. It is closely related to *A. DICHOTOMA*.

A. purpurea, Nutt.* Triple-awned Grass.

Blue Earth county, and common westward to Pipestone county, Leiberg. Southwest.

A. purpurascens, Poir. Triple-awned Grass.

Lapham. St. Croix county, Wisconsin, Sweeney. Infrequent. South.

A. tuberculosa, Nutt. Triple-awned Grass.

Lapham. Pine barrens, St. Croix river, Parry. South.

SPARTINA, Schreber. CORD or MARSH GRASS.**S. cynosuroides**, Willd. Fresh-water Cord-Grass.

Abundant through the south half of the state and in the Red river valley; north of lake Superior, Agassiz; making up the greater part of the hay cut in sloughs, worth for fodder fully half as much as the hay of the uplands. Its height is usually from two to four feet, but occasionally it is eight or nine feet. In the five or six counties next to the southwest corner of the state, because of the scarcity of wood and the high cost of that or coal for fuel, a large proportion of the people burn only hay during the whole year. For this purpose the coarse hay of this species is the only kind used. It is mostly burned in ordinary stoves, having been twisted, then doubled and again twisted, forming wisps about one and a half feet long. The quantity of this fuel required for a year's supply in an ordinary farm-house is from eight to twelve tons.

BOUTELOUA, Lagasca. MUSKIT-GRASS. GRAMA-GRASS.**B. oligostachya**, Torr. Muskit-Grass. Grama.

Common, or frequent, southwestward and in the Red river valley; less frequent east to Stillwater and the edge of Wisconsin.

B. hirsuta, Lagasca. Muskit-Grass. Grama.

Common through the south part of the state, extending north to Minneapolis and the St. Croix river, Parry; abundant at New Ulm and in Rock and Pipestone counties.

This and the preceding are sometimes called Buffalo Grass in this state, a name which more properly belongs to Buchloe. See pages 14 and 32 of Rothrock's *Report on the Botany of Wheeler's Survey west of the One Hundredth Meridian* for chemical analyses of *Festuca ovina* and the two foregoing species of *Bouteloua*, which with others of this genus are commonly called Grama in the southwestern United States.

B. racemosa, Lagasca. (B. *curtipendula*, Gray.) Muskit Grass. Grama.

Common through the south part of the state, especially southwestward; likewise in the Red river valley.

TOMA, from which it differs in its shorter, erect (not dichotomous) culms, and in its much larger flowers, and especially in the much longer, spreading, lateral awns. From *A. GRACILIS* it differs in the shorter panicle, the longer upper leaves with sheathed flowers, and in the flowers being twice as large. From *A. RAMOSISSIMA* it differs in wanting the larger size, the diffusely branched habit, the much larger flowers with 3- to 5-nerved glumes, and the strong recurved middle awn of that species. *Dr. George Vasey* in the *Botanical Gazette*, vol. ix, p. 76 (May, 1884).

**ARISTIDA PURPUREA*, Nutt. Perennial; culms 6 to 15 inches high, simple, erect, slender, mostly glabrous; sheaths narrow, scabrous, exceeding the internodes, pilose at the throat; leaves very narrow, convolute, $\frac{1}{2}$ to 10 inches long; panicle slender, erect or flaccid, 3 to 6 inches long, loosely few-flowered; glumes purplish, the upper 6 to 9 lines long, about twice exceeding the lower, and longer than the flower, bifid and shortly awned; flower densely short-pilose at the pointed base, scabrous above, 6 lines long, the awns equal or nearly so, separate to the base, not jointed, 1 to 2 inches long, scabrous. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

BUCHLOE, Engelm. **BUFFALO GRASS.****B. dactyloides**, Engelm.* Buffalo Grass.

Abundant in the vicinity of the pipestone quarry, at Pipestone City, commencing a few rods north of the railroad depot, and extending the whole length of the outcropping ledge of rock northward, in company with a dense growth of prickly pear (*Opuntia Missouriensis* and *O. fragilis*); also occurring, at rare intervals, on stony and gravelly soil, in Rock county, and in Lyon county, Iowa; (not found farther east; perhaps in all these places introduced by the Indians in their journeys from the western plains to the pipestone quarry;) *Leiberg*. [Formerly the most abundant species of grass throughout Nebraska, lately disappearing, according to *Aughey*, who attributes its dying out to increased rain-fall.]

: **GRAPHEPHORUM**, Desv. **GRAPHEPHORUM.****G. festucaceum**, Gray.† *Graphephorum*.

In Emmet county, Iowa, six miles south of the state line (plentiful upon space of five or six square rods, in edge of lake), *Cratty*; determined by *Prof. Asa Gray*; the first observation of this species in the United States, though it abounds in the Saskatchewan region and extends thence northward, and also is found in northern Europe. Doubtless it occurs in western and northern Minnesota. (*Botanical Gazette*, vol. ix, p. 27; Feb., 1884.)

***BUCHLOE**, Engelmann. Flowers dioecious, heteromorphous.—*Male plant*. Spikes 1-sided, 2-ranked; spikelets 2- or 3 flowered. Glumes 2, 1-nerved, lower much smaller. Palets 2, of equal length, longer than the glumes; lower one 3-nerved, mucronate; upper one 2-nerved. Squamulae in pairs, truncate, emarginate. Stamens 3; anthers linear. Rudiment of an ovary none.—*Female plant*. Spikes 1 to 3, short, capitulate, oblique in the involucrate sheaths of the upper leaves; spikelets 1-flowered, crowded, upper floret abortive, withering. Glumes 2; lower glume of the lowest spikelets 1- to 3-nerved, lanceolate-subulate, with an herbaceous tip, or 2- or 3-cleft, lower side adnate to the back of the upper glume; lower glumes of the other spikelets (internal as to the head) free, much smaller, membranaceous, ovate-lanceolate, acute, 1-nerved; upper glumes (external) connate at the base with the thickened rachis, at length like a hard, woody involucre, ovate, nerveless, pale, trifid at the herbaceous, nerved tip. Lower palet (internal as to the head) shorter, 3-nerved, herbaceous, tricuspidate; upper palet shorter, 2-nerved. Squamulae as in the male flowers. Rudiments of the stamens 3, minute. Ovary lenticular, glabrous, very short-stipitate; stigmas much longer than the 2 erect terminal styles, plumose with simple hairs, exert from the apex of the flower. Caryopsis free, included in a horny, at length deciduous head, sublenticular, flat on the outside (toward the lower palet), convex on the inner side.

B. **DACTYLOIDES**, Engelmann. *Trans. Saint Louis Acad.*, vol. i, p. 432, pl. 12 and 14. Densely tufted, spreading by stolons, forming broad mats; culms 3 to 6 inches long; flowering stems of the male plant 4 to 6 inches long; glabrous or slightly hairy; leaves 2 to 4 inches long, $\frac{1}{2}$ to $1\frac{1}{2}$ lines wide, nearly smooth; sheaths striate, glabrous, strongly bearded at the throat; spikes 3 to 6 lines long; spikelets alternate in 2 rows, uppermost abortive, bristle-form, 2 to 3 lines long; lower glume ovate-lanceolate, with a scarious margin; upper glume twice longer, ovate; lower palet convex, 3-nerved, upper one 2-nerved, two minute scales at the margin and inside of the lower palet; stamens 3. Stems of the female plant much shorter than the leaves, $1\frac{1}{2}$ to 2 inches high; heads 3 to $3\frac{1}{2}$ lines long; glumes becoming ligneous; spikes or heads usually 2; at maturity becoming thick, extremely hard, including the loose grain.—The celebrated "buffalo grass," known to hunters and trappers as one of the most nutritious grasses, on which for a part of the year subsist and fatten the immense herds of buffalo and the cattle of the hunter and emigrant. *Porter and Coulter's Flora of Colorado*.

†**GRAPHEPHORUM FESTUCACEUM**, Gray. (*Festuca borealis*, Mert. & Koch. *Arundo festucacea*, Willd.) Culm as thick as a swan's quill, 3 to 4 or more feet high; leaves 8 to 10 inches long, broadly linear-acuminate, rough to the touch. Panicle a foot and more long, almost quite erect, as well as the subverticillate slender branches.

DIARRHENA, Raf. DIARRHENA.

D. Americana, Beauv. Diarrhena.
Sherburne county, *Upham*. Rare. South.

DACTYLIS, L. ORCHARD GRASS.

D. glomerata, L. *Orchard Grass*.
Ramsey county, *Oestlund*; Minneapolis, *Simmons*; Mankato, *Leiberg*.

KŒLERIA, Pers. KŒLERIA.

K. cristata, Pers. Koeleria.

Common, or frequent, throughout the state. [The most plentiful species of grass on the line of the Northern Pacific railroad in western Dakota, *Leiberg*.]

EATONIA, Raf. EATONIA.

E. obtusata, Gray. Eatonia.

Minneapolis, *Upham*; Blue Earth county, *Leiberg*. [Manitoba, *Macoun*.] South and west.

E. Pennsylvanica, Gray. Eatonia.

Throughout the state, excepting perhaps northwestward. Ramsey county, *Oestlund*; Minneapolis, *Upham*; Blue Earth county, *Leiberg*; New Ulm, *Juni*. [North of lake Superior, *Agassiz*.]

GLYCERIA, R. Br. MANNA-GRASS.

G. Canadensis, Trin. Rattlesnake-Grass.

Frequent throughout the state, excepting far southward. St. Croix river, *Parry*; Ramsey county, *Oestlund*; Minneapolis, *Simmons*, *Kassube*.

G. elongata, Trin. Manna-Grass.

Minneapolis, *Upham*; Blue Earth county, *Leiberg*. Infrequent.

G. nervata, Trin. Fowl Meadow-Grass.

Common throughout the state.

[*G. pallida*, Trin., doubtless occurs in this state, but has been overlooked.]

G. aquatica, Smith, var. **Americana**, Vasey. Reed Meadow-Grass.

Common throughout the state.

Spikelets erect, $\frac{1}{2}$ to $\frac{3}{4}$ of an inch long, scattered or subfascicled, sessile or pedicellate, generally 4-flowered. Glumes unequal, convex, rounded at the back, not keeled, the outer one shorter than the florets, acute, entire at the point, the middle nerve reaching beyond the point, so as to form a short awl; there are besides, on each side, two short lateral nerves; the inner glume as long as the whole spikelet of florets, torn at the point, aristate, the middle nerve reaching beyond the point; there are besides 2 lateral nerves reaching to the apex, and 2 intermediate shorter ones. Florets cylindrical, closely placed, with a tuft of white hairs at the base of each; outer valve [palet] of the perianth jagged at the point, shortly aristate, with 7 nerves reaching to the summit; the inner lanceolate, the margin inflected, with 2 strong, green, ciliated nerves at the flexures, running out so as to form a bifid apex; upper floret smaller than the rest. *Hooker's Flora Borealis Am.*, II, 251. — The Iowa specimens, communicated by Mr. R. I. Cratty, agree fully with this description, except that the spikelets are not so large, scarcely exceeding $\frac{3}{8}$ of an inch in length. Pedicels of the spikelets rough; awns formed by the nerves, especially of the glumes, inconspicuous, and sometimes barely observable. It grows 3 to 5 feet high in water, at the margin of lakes. *Arthur in Contributions to the Flora of Iowa*, No. VI.

G. fluitans, R. Br. Manva-Grass.
Common, or frequent, throughout the state.

POA, L. MEADOW-GRASS. SPEAR-GRASS.

P. annua, L. Low Spear-Grass.

Throughout the state, excepting perhaps far southward, but infrequent. Minneapolis, *Kassube*; Blue Earth county, *Leiberg*.

P. compressa, L. Wire-Grass.

Throughout the state, but infrequent. *Parry, Lapham*. Ramsey county, *Oestlund*; Blue Earth county, *Leiberg*; Pembina, *Chickering, Havard*.

P. alpina, L. Spear-Grass.

Isle Royale, and north shore of lake Superior, *Loring, Porter, Macoun*; doubtless also in Minnesota. North.

P. caesia, Smith. Spear-Grass.

Throughout the state. North shore of lake Superior, *Juni*; Blue Earth county, *Leiberg*; Emmet county, Iowa, *Cratty*.

P. caesia, Smith, var. **strictior**, Gray. Spear-Grass.

Isle Royale, *Whitney*; Red river, *Dawson, Macoun*. North.

P. serotina, Ehrh. False Red-top. Fowl Meadow-Grass.

Common throughout the state.

P. pratensis, L. Green or Common Meadow-Grass. Kentucky Blue-Grass. June Grass.

Common throughout the state; taking the place of the original prairie grasses in southwestern Minnesota, *Juni*. [In Nebraska not native, but spreading westward, *Aughay*.]

P. sylvestris, Gray. Spear-Grass.

Lapham. Pembina, *Havard*. Rare. South and west.

[*P. debilis*, Torr., probably occurs in this state.]

P. alsodes, Gray. Spear-Grass.

Saint Paul, *Kelley*; Red river valley, at Pembina, *Chickering*. Infrequent. South and west.

ERAGROSTIS, Beauv. ERAGROSTIS.

E. reptans, Nees. Eragrostis.

Through the south part of the state. *Lapham*. Goodhue county, *Oestlund*; Blue Earth county, *Leiberg*.

E. poaeoides, Beauv., var. **megastachya**, Gray. Eragrostis.

Abundant, in door-yards and by road-sides, through the south half of the state; common north at least to Crow Wing, Todd and Grant counties, and in the Red river valley, *Upham*. It was found by *Geyer* in 1839 on sandy plains in the valley of the Sheyenne river, Dakota, and is quite probably indigenous in this region.

E. pilosa, Beauv. *Eragrostis*.

Blue Earth county, *Leiberg*; Minneapolis (distinct from *E. Purshii*), *Upham*. Infrequent. South.

E. Frankii, Meyer. Frank's Eragrostis.

Hastings, Dakota county, *Oestlund*. Southeast

E. Purshii, Schrader. Pursh's Eragrostis.

Becoming abundant by road-sides and in waste places, Ramsey county, Minneapolis,

and Steele county, *Oestlund, Simmons, Upham*; determined by *Scribner, Vasey and Watson*. South.

E. capillaris, Nees. Eragrostis.
Lapham Minneapolis, *Kassube*. Infrequent. South.

E. pectinacea, Gray. Eragrostis.
Lapham. Minneapolis, *Simmons*. South.

E. pectinacea, Gray, var. **spectabilis**, Gray. Eragrostis.
 Minneapolis (river bluff near the University), *Oestlund, Upham*. South.

FESTUCA, L. FESCUE-GRASS.

F. tenella, Willd. Slender Fescue-Grass.

Through the south half of the state. *Lapham*. Minneapolis, *Simmons*, (abundant on sandy land east of the University) *Upham*.

F. ovina, L. Sheep's Fescue.
 Frequent throughout the state, excepting perhaps far southward.

F. rubra, L. (F. ovina, L., var. rubra, Gray.) Red Fescue.

Lake Superior, *Dr. Robbins*, and northward, Gray's *Manual*; probably in northern Minnesota.

[F. *duriuscula*, L. (F. *ovina*, L., var. *duriuscula*, Gray), should also be looked for northward.]

F. elatior, L. (Including *F. pratensis*, Hudson.) *Taller or Meadow Fescue*.
 Minneapolis, old state farm close southeast from University, *Oestlund*. Infrequent.

F. nutans, Willd. Nodding Fescue.

Throughout the state, excepting perhaps far northward, but infrequent. Lake Winnebago, *Houghton*; lake Minnetonka, *Oestlund*; Blue Earth county, *Leiberg*; Emmet county, Iowa (rare), *Cratty*.

BROMUS, L. BROME-GRASS.

B. secalinus, L. *Cheat or Chess*.

Occasional in wheat-fields, mostly southeastward. A very unwelcome immigrant. Plentiful in Houston county, especially in fields of winter wheat, also frequent in mowing land, *J. S. Harris*; frequent, but not so plentiful as to be troublesome, in Steele county and at Minneapolis, *Upham*.

B. racemosus, L. *Upright Chess*.
 Minneapolis, *Kassube*. Infrequent.

B. Kalmii, Gray. Wild Chess.

Common, or frequent, throughout the state, excepting perhaps northeastward.

B. ciliatus, L. Wild Chess.
 Common, or frequent, throughout the state.

B. ciliatus, L., var. **purgans**, Gray. Wild Chess.
 Minneapolis, *Upham*. Probably common.

PHRAGMITES, Trin. Reed.

P. communis, Trin. Reed.

Common, or frequent, in the edges of ponds and lakes, throughout the prairie portion of the state; also at Roseau lake and the lake of the Woods, *Dawson*.

SCHEDONNARDUS, Steudel.* **SCHEDONNARDUS**.**S. Texanus**, Steud. (*Lepturus paniculatus*, Nutt.) **Schedonnardus**.Rocky hills, Mound township, Rock county, *Leiberg*. [Upper Missouri river, *Geyer*.]
Rare. Southwest.**LOLIUM**, L. **DARNEL. RAY-GRASS.****L. temulentum**, L. *Bearded Darnel*.Mankato (plentiful about the elevator of the St. Paul & Sioux City railroad), *Leiberg*.**AGROPYRUM**, Beauv. (*TRITICUM*, L., in part.) **WHEAT-GRASS.****A. repens**, Beauv. (*T. repens*, L.) **Couch-, Quitch-, Quick-, or Witch-Grass.**

Frequent, or common, throughout the state, but rarely so plentiful as to be troublesome. (Specimens which must be referred to this species, as decided by *Mr. Sereno Watson*, were found at Minneapolis on the embankment of the railroad about an eighth of a mile northwest from the University and close west of Tuttle's brook, having a very narrow and long spike of many spikelets, awnless, as long or half as long as the joints of the rhachis, 3-flowered, with a rudiment of a fourth flower, often the lowest or the middle flower not ripening its grain, and having in some instances no running rootstocks. The typical *T. repens* occurs near by, and also forms which seem to be intermediate in respect to both the character of the spikes and the presence of rootstocks. *Upham*.)

A. dasystachyum, Vasey. (*T. dasystachyum*, Gray.) **Wheat-Gras.**North shore of lake Superior, *Agassiz*; doubtless also in northern Minnesota.**A. violaceum**, Vasey. (*T. violaceum*, Hornemann.) **Wheat-Grass.**

Throughout the state, but rarer than the next. Pembina, *Havard*; in openings of woods, on sandy modified drift, at the northwest side of Mille Lacs, *Upham*; Ramsey county, *Oestlund*; Emmet county, Iowa, *Cratty*.

A. caninum, Roem. & Schultes. (*T. caninum*, L.) **Wheat-Grass.**

Frequent throughout the state, excepting perhaps far southward. Pembina, *Havard*; Minneapolis, *Twining*, *Upham*; Blue Earth county, *Leiberg*; New Ulm, *Juni*. [Between the James and Red rivers, Dakota, *Geyer*.]

HORDEUM, L. **BARLEY.****H. jubatum**, L. **Squirrel-tail Grass.**

Common, or frequent, throughout the state.

H. pusillum, Nutt. (*H. pratense*, Gray's *Manual*.) **Barley-Grass.**Blue Earth county, *Leiberg*. Rare. South.**ELYMUS**, L. **LYME-GRASS. WILD RYE.****E. Virginicus**, L. **Wild Rye.**

Frequent throughout the state; less common than the next.

E. Canadensis, L. **Nodding Wild Rye.**

Common throughout the state.

***SCHEDONNARDUS**, Steudel. Spikelets one-flowered, solitary at each joint of the slender triangular rhachis of the paniculate spikes, and partly immersed in an excavation; the spikes alternate and distant; outer glumes acuminate, unequal, the longer equaling the flowering glume, which is linear-acuminate, and thickish at the keel; palet shorter and thinner. *Vasey's Grasses of U. S.*

E. Canadensis, L., var. **glaucifolius**, Gray. Nodding Wild Rye.

Throughout the state. Lake of the Woods (sandy shore), *Dawson*; *Martin county*, and *Emmet county*, *Iowa*, *Cratty*.

E. Sibiricus, L. Wild Rye.

Red river valley, at *Pembina*, *Havard*. North.

E. striatus, Willd. Wild Rye.

Throughout the state. St. Croix river, *Houghton*; *Ramsey county*, *Oestlund*; *Minneapolis*, *Simmons*; *Blue Earth county*, *Leiberg*; *New Ulm*, *Juni*; *Martin county* (plentiful), *Cratty*. [Lake Superior, *Whitney*; *Manitoba*, *Macoun*.]

E. striatus, Willd., var. **villosus**, Gray. Wild Rye.

Also throughout the state. *Pembina*, *Havard*; lake *Minnetonka*, *Roberts*; *Blue Earth county* (frequent), *Leiberg*.

E. mollis, Trin. Wild Rye.

Lake shores [probably lake Superior], *Minnesota*, *Wood's Class-Book*. [North of lake Superior, *Agassiz*.]

E. Sitanion, Schultes.* Wild Rye.

From northern *Minnesota* to *Texas* and west to *California*, *Watson*; *Blue Earth county* and westward, *Leiberg*. West.

ASPRELLA, Willd. (*GYMNOSTICHUM*, Schreb.) BOTTLE-BRUSH GRASS.**A. Hystrix**, Willd. (*G. Hystrix*, Schreb.) Bottle-brush Grass.

Common, or frequent, throughout the state.

DANTHONIA, DC. WILD OAT-GRASS.**D. spicata**, Beauv. Wild Oat-Grass.

Throughout the state, but mostly infrequent. Lake of the Woods, *Dawson*; *Stearns county*, etc., *Upham*; *Pipestone county*, *Mrs. Bennett*.

AVENA, L. Oat.*A. fatua*, L.† Wild Oats.

Ramsey county (new state farm and adjoining land, growing in grain-fields and on waste ground, apparently naturalized and spreading), *Oestlund*. Extensively naturalized in *California*; also found in *Texas* and *Wisconsin*, in the latter state becoming very troublesome in oat-fields, *Vasey*; but not yet reported (so far as known to the writer) in other portions of the United States east of the *Rocky mountains*. Its seeds ripen early and mostly fall before harvest, rendering its extermination more difficult. It is supposed to be the original of the cultivated oat (*A. sativa*, L.).

**LEYMUS SITANION*, Schultes. Culms 4 inches to 2 feet high, tufted, and with the leaves and sheaths glabrous or somewhat pubescent or scabrous; spike erect, 1 to 3 inches long, squarrose with its long recurved awns, jointed and fragile at maturity; spikelets in pairs, 2- to 5-flowered, smooth or puberulent; glumes entire or usually parted to the base and the segments unequally 2-cleft, the divisions long-awned (1 to 3 inches); flowers 3 lines long, the awn of the lower palet equaling that of the glumes, with often a subsidiary awn or tooth on each side at the apex of the palet. A very variable grass. *Watson's Rep. in King's Expl. of the Fortieth Parallel*.

†*Avena fatua*, L. An erect annual, 2 or 3 feet high, smooth except at the hairy nodes, with flat slightly scabrous leaves and loose sheaths: panicle 8 to 10 inches long, the few-flowered rays spreading equally; spikelets about an inch long, the scarious pointed glumes longer than the florets, often purplish at base: lower palet about 6 lines long, firm at base, scabrous and covered with long brown hairs, its lobes tapering to a sharp point; awn about twice the length of palet, bent near the middle and twisted below: grain very hairy. *Thurber in Botany of California*.

A. striata, Michx. Oat-Grass.

Throughout the state, excepting perhaps far southward, Isanti county, etc. (frequent), *Upham*; New Ulm, *Juni*.

A. Smithii, T. C. Porter. Oat-Grass.

Isle Royale, and eastward about lake Superior, *Gray's Manual*; probably also north of this lake in Minnesota.

TRISETUM, Persoon. **TRISETUM**.**T. subspicatum**, Beauv., var. **molle**, Gray. **Triisetum**.

North of lake Superior (common), *Macoun*.

DESCHAMPSIA, Beauv. (*AIRA*, L., in part.) **HAIR-GRASS**.**D. cæspitosa**, Beauv. (*A. cæspitosa*, L.) **Hair-Grass**.

Throughout the state, excepting perhaps far southward, but infrequent. Blue Earth county, *Leiberg*.

[*D. flexuosa*, Beauv. (*A. flexuosa*, L.), probably also occurs in this state.]

ARRHENATHERUM, Beauv. **OAT-GRASS**.**A. avenaceum**, Beauv. **Tall Oat-Grass**.

New state farm, Ramsey county, *Oestlund*. Infrequent.

HIEROCHLOA, Gmelin. **HOLY GRASS**.**H. borealis**, Rœm. and Schultes. **Vanilla or Seneca Grass**.

Common, or frequent, throughout the state.

PHALARIS, L. **CANARY-GRASS**.**P. Canariensis**, L. **Canary-Grass**.

Occasionally adventive: Minneapolis, *Simmons*, *Upham*; Waterville, *Le Sueur* county, *Oestlund*.

P. arundinacea, L. **Reed Canary-Grass**.

Common, or frequent, throughout the state.

[*Milium effusum*, L., probably occurs in this state, but has been overlooked.]

BECKMANNIA, Host. **BECKMANNIA**. **BECKMANN'S GRASS**.**B. erucæformis**, Host.* **Beckmann's Grass**.

Lapham. Pipestone quarry (growing in the hollows of the rock, where water occasionally stands), *Leiberg*. [James river, Dakota, *Geyer*; and north to the Saskatchewan river and Bear lake, *Watson*.] Rare. West.

***BECKMANNIA**, Host. Panicle racemose, contracted. Spikelets compressed, 2-flowered, the upper floret an abortive rudiment. Glumes 2, obovate, compressed-boatshaped, subcoriaceous, equal, a little shorter than the flower, pointless. Palets membranous, the lower ovate, concave, acutish, mucronate, 3-nerved, the upper 2-nerved, bifid. Stamens 3. Styles 2, with elongated plumose stigmas. Scales 2, bifid, glabrous. Grain free, glabrous. —A coarse perennial aquatic.

B. **ERUCÆFORMIS**, Host. Culms stout, 1 to 3½ feet high, erect from an ascending base, with the sheaths glabrous; ligules elongated; leaves linear, 4 to 8 inches long and 2 to 6 lines wide, flat, acute, scarious; panicle 4 to 12 inches long, erect, strict, secund, the short crowded branchlets densely flowered from the base, glabrous; spikelets sessile, imbricately arranged in two rows, nearly orbicular, 1½ lines in diameter, the upper rudimentary floret minute, stipitate. June to September. *Watson's Rep.* in *King's Expl. of the Fortieth Parallel*.

PANICUM, L. PANIC-GRASS.

P. glabrum, Gaudin. *Smooth Finger-Grass.*

Minneapolis (plentiful), *Simmons, Upham*; Blue Earth county, *Leiberg*.

P. sanguinale, L. *Common Crab- or Finger-Grass.*

Minneapolis, *Kassube*; Blue Earth county, *Leiberg*.

P. agrostoides, Spreng. *Panic-Grass.*

Lapham. Ramsey and Hennepin counties, *Oestlund*. South.

P. capillare, L. *Old-witch Grass.*

Common throughout the state. Late in autumn "the spreading panicle is easily broken off and blown about by the wind."

P. autumnale, Bosc. *Panic-Grass.*

Lapham. New Ulm, *Juni*. Rare. South.

P. virgatum, L. *Panic-Grass.*

Abundant southwestward and in the Red river valley; frequent southeastward. "Nowhere so luxuriant as near the upper Des Moines river and Spirit lake," *Geyer, Torrey*.

P. latifolium, L. *Panic-Grass.*

Through the south half of the state, but infrequent. Minnesota river, *Parry*; Blue Earth county, *Leiberg*; Minneapolis, *Simmons*; Anoka county, etc., *Upham*.

[*P. clandestinum*, L., probably also occurs in this state.]

P. xanthophysum, Gray. *Panic-Grass.*

Throughout the state. Minneapolis, *Kassube*; Steele and Isanti counties, *Upham*. [Manitoba, *Macoun*; also in the catalogues of Wisconsin, Iowa and Nebraska.]

P. consanguineum, Kunth, var. **latifolium**, Vasey, ined.* *Panic-Grass.*

New state farm, Ramsey county, *Oestlund*. Probably frequent; resembling *P. xanthophysum*, so that perhaps some of the references under that species belong instead to this.

P. pauciflorum, Ell. *Panic-Grass.*

Throughout the state, excepting perhaps northeastward. Red river (swampy prairie), *Dawson*; Ramsey county, *Oestlund*; Minneapolis, *Upham*; Blue Earth county, *Leiberg*; Emmet county, Iowa (common), *Cratty*.

P. dichotomum, L. *Panic-Grass.*

Common, or frequent, throughout the state. [Specimens collected in early summer by *Mr. Oestlund* on the new state farm, Ramsey county, are regarded by *Dr. Vasey* as representing the typical form of this species. It occurs intermingled with other grasses on lowlands: mainly smooth; culms slender, 1½ feet high; panicle long-peduncled.]

P. dichotomum, L., var. **pubescens**, Vasey, ined. (*P. pubescens*, Lam.) *Panic-Grass.*

Ramsey and Hennepin counties (usually about a foot high, becoming much branched), *Oestlund, Upham*; probably the more common form of the species in this state. *Gray's Manual* characterizes it as "a shaggy-hairy and larger-flowered variety." [Culm rather leafy, 1 to 2 feet high; leaves and sheaths decidedly pubescent or villous. *Letter of Dr. Vasey*, Sept. 30, 1884.]

**PANICUM CONSANGUINEUM*, Kunth. Smooth or villous; culms (1 to 1½ feet high) at length excessively branched; leaves linear, erect; panicle long-peduncled, the flexuous widely spreading branches few-flowered; spikelets obovate, pale, pubescent; upper glume 7-nerved; upper palea of the neutral flower none; perfect flower acute. *Chapman's Flora of the Southern States*, appendix, p. 667.—Var. *LATIFOLIUM*, Vasey, ined. Culms weaker, leaves wider, and flowers more pubescent. Minnesota, *Oestlund*. *Letter of Dr. Vasey*, Sept. 30, 1884.

[Two others of the forms included under *P. dichotomum* in Gray's *Manual*, but separated from it by appendix of Chapman's *Flora of the Southern States*, with the descriptions here quoted, are recognized by Dr. Vasey (*Grasses of U. S.*) as distinct species, namely, *P. LAXIFLORUM*, Lam. (culms tufted, smooth, 6 to 12 inches high; leaves lanceolate, acuminate, ciliate, mostly pale yellowish-green, 2 to 3 inches long, the villous sheaths shorter than the internodes; panicle diffuse, plumose-bearded, rather few-flowered; spikelets scattered, oval, densely pubescent, the upper glume 7-nerved; neutral flower bipaleaceous; fertile flower acute: on dry sandy ground), and *P. RAMULOSUM*, Michx., in part (low, 6 to 8 inches high, tufted, very smooth and shining; culm mostly purple; leaves linear; panicle 1½ to 2 inches long, diffusely branched, many-flowered; spikelets minute, purple, very smooth, the upper glume and neutral palet 5-nerved: in sandy woodlands); both of which are common in the eastern states, but have not yet been observed so far northwestward as Minnesota.]

P. depauperatum, Muhl. Panic-Grass.

Throughout the state. *Lapham*. Blue Earth county; *Leiberg*; Emmet county, Iowa, *Cratty*. [Lake Superior, *Whitney*; Manitoba, *Macoun*.]

P. Crus-galli, L. Barnyard-Grass.

Common throughout the state.

P. Crus-galli, L., var. **hispidum**, Gray. Cockspur Grass.

Rock and Pipestone counties, etc. (frequently seen attaining a very rank growth beside roads where they cross creeks or boggy land, apparently indigenous), *Leiberg*.

SETARIA, Beauv. BRISTLY FOX-TAIL GRASS.

S. verticillata, Beauv. *Bristly Fox-tail Grass*.

Mankato, *Leiberg*. Rare.

S. glauca, Beauv. "Pigeon-Grass." Foxtail.

Common, often abundant, throughout the state.

S. viridis, Beauv. "Pigeon-Grass." Green Foxtail. Bottle-Grass.

Also common, or abundant, in cultivated ground, with the last.

S. Italica, Kunth. Millet. Bengal-Grass.

Becoming a bad weed in flax-fields in the southern part of the state, *Leiberg*; New Ulm, *Juni*.

CENCHRUS, L. HEDGEHOG-GRASS. BUR-GRASS.

C. tribuloides, L. "Sand-bur." Hedgehog-Grass. Bur-Grass.

Common, or frequent, in sandy lands along the Mississippi and Minnesota rivers. (Occasionally attacked by smut, as at Minneapolis in 1884.)

ANDROPOGON, L. BEARD-GRASS.

A. furcatus, Muhl. "Blue-Joint." Beard-Grass. Forked Spike.

Common, or abundant, throughout the prairie region of the state; extending northeast at least to Crow Wing county, *Upham*, and the lake of the Woods, *Dawson*. Highly esteemed for hay; southwestward it is usually called "Blue-Joint," a name which properly belongs to *Deyeuxia Canadensis*.

A. scoparius, Michx. Beard-Grass. Broom-Grass.

Common, with same range as the last.

CHRYSTOPOGON, Trin.* CHRYSTOPOGON. BEARD-GRASS.

C. nutans, Benth. (*Sorghum nutans*, Gray.) Indian Grass. Wood-Grass.

Common, with same range as the two last; making good hay.

* *CHRYSTOPOGON*, Trin. Flowers loosely paniculate. Fertile spikelets one-flowered, sessile between two pedicellate male or barren spikelets at the end of the slender

EQUISETACEÆ. HORSETAIL FAMILY.

EQUISETUM, L. HORSETAIL. SCOURING-RUSH.[*E. Telmateia*, Ehrh., probably occurs in this state north of lake Superior.]**E. arvense, L.** Common Horsetail.

Common throughout the state.

E. pratense, Ehrh. Meadow Horsetail.Throughout the state, excepting perhaps far southward. Morrison county, *Upham*; Stearns county, *Campbell*; Saint Paul, *Kelley*.**E. sylvaticum, L.** Wood Horsetail.

Throughout the state : common northward, but infrequent far southward.

[*E. palustre*, L., will probably be found in the north part of the state.]**E. limosum, L.** Swamp Horsetail.

Common, or frequent, throughout the state.

E. laevigatum, Braun. Horsetail.Minneapolis, *Simmons*, *Upham*; Red river, near Saint Vincent, *Dawson*, *Scott*. South and west.**E. hiemale, L.** Scouring-Rush. Shave-Grass.Common throughout the state ; very abundant along the banks of the Minnesota river, *Parry*.**E. variegatum, Schleicher.** Horsetail.Throughout the state, excepting perhaps far southward. Near the Mississippi river, Anoka county, *Upham*; Minneapolis, *Simmons*. Infrequent.**E. scirpoides, Michx.** Horsetail.Range like the last, also infrequent. *Lapham*. Deep woods, St. Croix river, *Parry*.

FILICES. FERNS.

POLYPODIUM, L. POLYPODY.**P. vulgare, L.** Common Polypody.

Abundant, or common, through the north half of the state ; frequent southeastward, on the rocky bluffs of the St. Croix, Mississippi and Minnesota rivers, and their tributaries ; rare southwestward.

ADIANTUM, L. MAIDENHAIR.**A. pedatum, L.** American Maidenhair.

Frequent, in many places common or abundant, throughout the state.

PTERIS, L. BRAKE or BRACKEN.**P. aquilina, L.** Common Brake. Bracken. Eagle Fern.

Common, or frequent, throughout the state.

branches of the panicle, with, sometimes, one to three pairs of spikelets on the branch below the terminal three. Fertile spikelets with the lower glume larger and coriaceous ; the second narrower, thick, keeled, pointed or awned ; the third hyaline and empty ; the fourth or flowering glume hyaline and awned. Palet minute or none. *Vasey's Grasses of U. S.*

CHEILANTHES, Swartz. Lip-Fern.

C. lanuginosa, Nutt. Lip-Fern.
Lapham, Miss Cathcart. Falls of the St. Croix, *Parry.* Rare.

PELLÆA, Link. CLIFF-BRAKE.

P. gracilis, Hook. Slender Cliff-Brake.

Throughout the state, but rare. Blue Earth river, and head of lake St. Croix, *Parry*; Saint Paul (rare), *Miss Cathcart*; cliffs forming the right bank of the Mississippi in Minneapolis, also at Minneopa falls, Blue Earth county, *Leiberg*; lake Pepin, *Miss Manning*; Martin county, and Emmet county, Iowa (rare), *Cratty*.

P. atropurpurea, Link. Clayton's Cliff-Brake.

Throughout the state, but infrequent. Stillwater, *Miss Field*; Saint Paul, *Miss Cathcart*; Hastings, *Oestlund*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*.

CRYPTOGRAMME, R. Br. (ALLOSORUS, Bernhardi, in part.)
 ROCK-BRAKE.

C. acrostichoides, R. Br. (Allosorus acrostichoides, Sprengel.) Rock-Brake.

Isle Royale, lake Superior, thence westward and northward, *Gray's Manual*; doubtless in Minnesota.

ASPLENIUM, L. SPLEENWORT.

A. Trichomanes, L. Maidenhair Spleenwort. Dwarf Spleenwort.

Burnt Portage, Dawson road, near the northern boundary of Minnesota, *Macoun*; Taylor's Falls, *Miss Cathcart*; Lake City, *Mrs. Ray*. Throughout the state, but infrequent.

A. ebeneum, Ait. Ebony Spleenwort.

Taylor's Falls, *Miss Cathcart*. Rare. [Nebraska, *Aughey*.]

[*A. Ruta-muraria*, L., and *A. angustifolium*, Michx., should be looked for in this state.]

A. thelypteroides, Michx. Silvery Spleenwort.

St. Croix river, *Parry*; Stillwater, *Miss Field*; lake Pepin, *Miss Manning*; Blue Earth county, *Leiberg*. East.

A. Filix-fœmina, Bernh. Lady-Fern.

Common (having diverse forms, but probably not permanent varieties) in woodlands throughout the state.

CAMPTOSORUS, Link. WALKING-LEAF. WALKING-FERN.

C. rhizophyllus, Link. Walking-Laf. Walking-Fern.

Throughout the state, but rare. Rocks, upper Mississippi river, *Geyer*; falls of the St. Croix, *Parry*; Taylor's Falls and Duluth, *Miss Cathcart*; Stillwater, *Miss Field*; Red Wing, *Oestlund*; lake Pepin, *Miss Manning*. [Manitoba, *Macoun*; Nebraska, *Aughey*.]

PHEGOPTERIS, Fée. BEECH-FERN.

P. polypodioides, Fée. Common Beech-Fern.

Abundant north of lake Superior, *Roberts*; extending south to the St. Croix river, *Parry*; Taylor's Falls (plentiful), *Miss Cathcart*. [Manitoba, *Macoun*; Nebraska, *Aughey*.]

P. hexagonoptera, Fée. Hexagon Beech-Fern.

Duluth (plentiful), *Miss Cathcart*; and through the south half of the state, but rare.

P. Dryopteris, Fée. Oak-Fern.

North of lake Superior (common), *Roberts*; St. Louis river, *Mrs. Herrick*; St. Croix river, *Parry*, *Miss Field*; Taylor's Falls (plentiful), Saint Paul (rare), *Miss Cathcart*. [Manitoba, *Macoun*.]

P. calcarea, Fée.* (P. *Dryopteris*, Fée, var. *Robertianum*, *Davenport*.) Beech-Fern.

"Collected in eastern Minnesota, growing on slaty rocks on the [west] bank of the St. Louis river, near [close north of] the crossing of the Northern Pacific Railway, by *Miss Ellen W. Cathcart*. Formerly attributed to America, but not clearly known as American till now. It is rather common in Europe, and has been found in the Himalayan regions of Asia. It will probably be found from Lake Superior to Idaho. This fern is very closely related to the common *P. Dryopteris*, and is often considered a variety of it." *Eaton's Ferns of North America* : 1880 ; vol. ii, p. 277. Since this was written, a second locality of this fern has been discovered by *Mr. E. W. Holway* at Decorah, Iowa, where it occurs only upon a space about six feet square, "in the crevices of the north side of a limestone bluff." *Arthur*; *Bulletin of Torrey Botanical Club*, vol. ix, p. 50. Still more recently it has been collected by *Prof. J. Macoun* in Anticosti island, and by *Drs. G. M. Dawson* and *R. Bell* in the country around and to the east of the lake of the Woods. *Science*, vol. iii, p. 676 (June 6, 1884).

ASPIDIUM, Swartz. SHIELD-FERN. WOOD-FERN.**A. Thelypteris**, Swartz. Marsh Shield-Fern.

Common, or frequent, throughout the state.

A. Noveboracense, Swartz. New York Shield-Fern.

Stearns county, Campbell; lake Pepin, *Miss Manning*. Infrequent. East.

A. fragrans, Swartz. Fragrant Wood-Fern.

Isle Royale, Dr. Lyons; Duluth and Taylor's Falls, *Miss Cathcart*; Kettle river, in T. 42, R. 20, *Pine county, Upham*; falls of the St. Croix, *Parry*; *Pipestone* quarry, *Mrs. Bennett*. [Nebraska, *Aughey*.] North and southwest.

A. spinulosum, Swartz. Spinulose or Common Wood-Fern.

Throughout the state, but rare. *Lapham*. Duluth, *Miss Cathcart*; lake of the Woods, *Dawson*.

A. spinulosum, Swartz, var. **intermedium**, Eaton. Spinulose or Common Wood-Fern.

Common, or frequent, throughout the state, excepting far southward. *Ramsey county, Simmons*; *Pine county, etc., Upham*. [North of lake Superior, *Agassiz*; Nebraska, *Aughey*.]

A. spinulosum, Swartz, var. **dilatatum**, Hornemann. Spinulose or Common Wood-Fern.

Throughout the state, excepting far southward. Falls of the St. Croix, *Parry*; Duluth, *Miss Cathcart*; *Cascade river*, north of lake Superior, *Roberts*. [Manitoba, *Macoun*; Nebraska, *Aughey*.]

***PHEGOPTERIS CALCAREA**, Fée. Rootstock slender, cord-like, widely creeping; stalks scattered, slender, glandular, chaffy near the base, six to twelve inches high; fronds herbaceous, rather rigid, minutely glandular, deltoid, four to eight inches long and about as broad at the base, ternate; primary divisions stalked, pinnate with oblong or ovate-oblong pinnæ, which are pinnately lobed or divided; lowest inferior pinna of the lateral divisions about equal to the third pinna of the middle division; lobes oblong, obtuse, crenately toothed, or if very large, pinnately lobed; veins pinnately branched, sori small, nearer the margin than the midvein. *Eaton's Ferns of N. A.*

A. Boottii, Tuckerman. (*A. spinulosum*, Swartz, var. *Boottii*, Gray.) Boott's Wood-Fern.

Kanabec county, *Upman*. Infrequent.

A. cristatum, Swartz. Crested Wood-Fern.

Throughout the state ; frequent northward, rare southward. St. Croix river, *Parry*; Minneapolis, *Simmons*; Saint Paul and lake Harriet (near Minneapolis), *Miss Cathcart*; Blue Earth county, *Leiberg*. [Extending northwest to lake Winnipeg, *Eaton*; Nebraska, *Aughey*.]

A. Goldianum, Hook. Goldie's Wood-Fern.

Minnesota, *Davenport*; Minneopa falls, Blue Earth county, *Leiberg*. Rare. East.

A. Filix-mas, Swartz. Male-Fern.

North shore of lake Superior, near Beaver Bay, *Campbell*. Rare. North.

A. marginale, Swartz. Marginal Shield-Fern. Evergreen Wood-Fern. *Lapham*, *Davenport*. Infrequent. [Nebraska, *Aughey*.]

A. acrostichoides, Swartz. Christmas-Fern.

Lapham, *Miss Cathcart*. Fort Snelling, *Parry*. East.

A. Lonchitis, Swartz. Holly-Fern.

South of lake Superior, *Whitney*; doubtless also north of this lake in Minnesota. [Nebraska, *Aughey*.]

[*A. aculeatum*, Swartz, var. *Braunii*, Doell, will also probably be found in the northeast part of this state.]

CYSTOPTERIS, Bernhardi. BLADDER-FERN. CYSTOPTERIS.

C. bulbifera, Bernh. Bulblet Cystopteris.

Frequent, or common, throughout the state.

C. fragilis, Bernh. Brittle Fern.

Also frequent, or common, throughout the state. Very variable ; the form named var. *dentata*, Hook., has been observed at Cascade river, north of lake Superior, *Roberts*; Taylor's Falls, *Miss Cathcart*; and in Iowa (common), *Arthur*.

C. montana, Bernh. Bladder-Fern. Cystopteris.

In a swamp at the silver mine three miles up the bay from Port Arthur, *Macoun*; probably also to be found north of lake Superior in Minnesota. [Deltoid-ovate, delicately tripinnate, and almost quadripinnate fronds, and a long, slender, creeping root-stock. *Eaton* in *Wheeler's Report of Surveys west of the One Hundredth Meridian*.]

ONOCLEA, L. SENSITIVE FERN.

O. Struthiopteris, Hoff. (*Struthiopteris Germanica*, Willd.) Ostrich-Fern.

Common, or frequent, throughout the state, excepting southwestward.

O. sensibilis, L. Sensitive Fern.

Common throughout the state, excepting perhaps near its west side. (A frond eighteen inches high, sterile on one side of the stipe, but wholly fertile on the other side, was found by the writer in Todd county. The form called var. *obtusilobata*, Torr., has been noted at Taylor's Falls, *Miss Cathcart*, and Mankato, *Gedge*.)

WOODSIA, R. Br. WOODSIA.

W. obtusa, Torr. Obtuse Woodsia.

Throughout the state, but local. Taylor's Falls [falls of the St. Croix], *Parry*, 12F

(abundant) *Miss Cathcart, Miss Field, Rock county, Leiberg; Pipestone quarry, Mrs. Bennett. [Manitoba, Macoun; Nebraska, Aughey.]*

W. Ilvensis, R. Br. Rusty Woodsia.

Throughout the state, excepting far southward. North of lake Superior (abundant), *Roberts; lake of the Woods, Dawson; Taylor's Falls and Duluth (common), Miss Cathcart, Miss Field; Stearns county, Mrs. Blaisdell; upper Minnesota river, Parry; Redwood Falls, Miss Butler.* "A dwarf form, one to three inches high, yet fruiting freely, was common in the clefts of the rocks on the summit of Carlton's Peak." *Roberts.*

[*W. hyperborea, R. Br.*, found by *Prof. Macoun* on the north shore of lake Superior, should be looked for in northern Minnesota. It is nearly related to *W. Ilvensis*, but is tenderer in its texture, much less chaffy, and narrower in outline, with shorter, more obtuse, and less divided pinnae. *Eaton's Ferns of N. A.*]

W. glabella, R. Br. Smooth Woodsia.

North of lake Superior (at Kakabeka falls), *Macoun*; doubtless also to be found in northern Minnesota; Stillwater, *Miss Field.*

W. Oregana, Eaton. Oregon Woodsia.

South shore of lake Superior and westward [Keweenaw peninsula and lake Winnipeg]; doubtless in northern Minnesota; also at Stillwater, *Miss Field.*

W. scopolina, Eaton.* Rocky Mountain Woodsia.

Collected by *Miss Cathcart* at Duluth, and at Taylor's Falls on the St. Croix river; Lyons creek below Minneopa falls, Blue Earth county, *Gedge.* "Growing in dense masses on rocks and in crevices, from Oregon to Mono Pass, California, and extending eastward to Dacotah, Minnesota and Colorado. . . . The largest specimens are from Minnesota and Colorado." *Eaton's Ferns of North America.*

DICKSONIA, L'Her. DICKSONIA.

D. pilosiuscula, Willd. (*D. punctilobula, Kunze.*) Fine-haired Mountain Fern. Hay-scented Fern.

Miss Cathcart. Stearns county, *Campbell*; lake Pepin, *Miss Manning.* Rare. Southeast.

OSMUNDA, L. FLOWERING FERN.

O. regalis, L. Royal-Fern. Flowering Fern.

Frequent throughout the state, excepting far southward. North of lake Superior (common along Devil's Track river), *Roberts*; Anoka county, etc., *Upham*; Saint Paul and northward, *Miss Cathcart, Miss Field.*

O. Claytoniana, L. Clayton's (Interrupted) Flowering Fern.

Common, or frequent, throughout the state.

O. cinnamomea, L. Cinnamon-Fern.

Throughout the state, excepting perhaps northwestward. Common north of lake Superior and at Minneapolis, *Roberts*; Anoka county, etc., *Upham*; Taylor's Falls, *Miss Cathcart, Miss Field*; Northfield, Rice county, *Chaney*; lake Pepin, *Miss Manning.*

**WOODSIA SCOPULINA, Eaton.* Root-stocks short, creeping, chaffy, forming large tufts or patches; stalks two to four inches high, not jointed, bright ferruginous near the base, paler and stramineous upwards, puberulent like the rachis and the under surface of the frond, with minute jointed hairs and stalked glands; fronds lanceolate-oblong, four to eight inches long, pinnate; pinnae numerous, eight to fifteen lines long, oblong-ovate, sub-acute, deeply pinnatifid with five to eight pairs of short ovate or oblong obtuse crenulate or toothed divisions; sori sub-marginal; indusium very delicate, deeply cleft into narrow segments which terminate in short hairs composed of irregular cylindrical cells. . . . Nearly like *W. Oregana.* *Eaton's Ferns of N. A.*

OPHIOGLOSSACEÆ. ADDER'S-TONGUE FAMILY.

BOTRYCHIUM, Swartz. GRAPE-FERN. MOONWORT.**B. Lunaria**, Swartz. Moonwort.North shore of lake Superior, *Macoun*; doubtless to be found in northern Minnesota.**B. simplex**, Hitchcock. Hitchcock's Grape-Fern.Thomson, Carlton county (rare), *Miss Cathcart*. [Abundant at Fort William, north of lake Superior, *Macoun*.] North.

[*B. lanceolatum*, *Angström*, and *B. matricariæfolium*, *Braun*, probably occur in northeastern Minnesota. The latter is distinguished from *B. lanceolatum* by having the sterile segment petioled, diverging but little and embracing the fertile when young, oblong and only in the largest plants deltoid, with its divisions and lobes oblong or ovate and obtuse; panicle with stalk usually half as long as the sterile segment, and sometimes longer than it; and by its fruiting two or three weeks earlier. *Eaton's Ferns of N. A.*.]

B. Virginianum, Swartz. Virginia Grape-Fern. Rattlesnake Fern.

Frequent, or common, throughout the state.

B. ternatum, Swartz. (*B. lunarioides*, Swartz. *B. australe*, R. Br.) Terminate Grape-Fern.Throughout the state, but infrequent. St. Croix river, *Parry*; St. Croix Falls (rare), *Miss Field*; lake Pepin, *Miss Manning*; near Lake Crystal (station now obliterated), *Leiberg*; lake of the Woods at mouth of Rainy river, *Dawson*. [Var. *obliquum*, *Milde*, and var. *dissectum*, *Milde*, probably also occur in this state.]

OPHIOGLOSSUM, L. ADDER'S TONGUE.

O. vulgatum, L. Adder's-Tongue.Lake of the Woods at mouth of Rainy river, with the last, *Dawson*. Rare.

LYCOPODIACEÆ. CLUB-MOSS FAMILY.

LYCOPODIUM, L. CLUB-MOSS. TRAILING EVERGREEN.

L. lucidulum, Michx. Shining Club-Moss.Mouth of Devil's Track river, lake Superior, and on Carlton's Peak (abundant), *Roberts*; lake of the Woods, *Dawson*; Kettle river, Pine county (common), *Upham*; St. Croix river, *Parry*; Blue Earth county, *Leiberg*. [Hesper, Iowa, *Mrs. Carter*; the sole species of this genus, and its only locality, known in Iowa, *Arthur*.] North.**L. Selago**, L. Fir Club-Moss.North shore of lake Superior, *Juni*, *Roberts*. Rare. North.**L. inundatum**, L. Marsh Club-Moss.Palisades, north shore of lake Superior, *Juni*; Stillwater, *Miss Butler*. North.**L. annotinum**, L. Club-Moss.Common through the north part of the state; extending southwestward to Pine county (common), *Upham*, and the sources of the Mississippi, *Houghton*.**L. dendroideum**, Michx. Tree-like Club-Moss. Ground-Pine.Common northward, extending southwest to Wadena county; the most plentiful species of club-moss in Pine county, *Upham*.

L. clavatum, L. Common Club-Moss.

Common northward, extending thus south at least to Pine county.

L. complanatum, L. Club-Moss. Festoon Ground-Pine.

Common northward; extending south to Wadena and Pine counties (next in abundance after *L. dendroideum*, Michx.), *Upham*. This and the three species next preceding are bounded within nearly the same limits as the pines, spruce and fir.

L. complanatum, L., var. *sabinæfolium*, Spring. Club-Moss. Ground-Fir.

Frequent far northward; upper Mississippi river, *Garrison*.

SELAGINELLEÆ.

SELAGINELLA, Beauv. DWARF CLUB-MOSS. SELAGINELLA.**S. selaginoides**, Link. Dwarf Club-Moss.

Isle Royale, *Dr. Lyons*; north shore of lake Superior, *Macoun*; doubtless to be found in northern Minnesota.

S. rupestris, Spring. Dwarf Club-Moss.

Throughout the state. Lake of the Woods, *Dawson*; Morrison, Benton and Stearns counties, *Upham*; upper Minnesota river and falls of the St. Croix, *Parry*; Blue Earth county, *Leiberg*; Redstone, near New Ulm, *Juni*; Redwood Falls, *Miss Butler*; Pipestone quarry, *Mrs. Bennett*.

[*S. apus*, Spring, will probably be found in the south part of the state.]

[*Isoetes lacustris*, L., *I. echinospora*, Durieu, var. *Braunii*, Engelm., *I. riparia*, Engelm., and *I. melanopoda*, J. Gay, should be looked for in this state.]

MARSILIACEÆ.

MARSILIA, Lam. MARSILIA.**M. vestita**, Hook. & Grev.* Marsilia.

"Dry swamps in the prairies near Devil's lake," in northeastern Dakota, *Geyer*; "near the Mississippi river," in Iowa, *Dr. Cousens*; probably also in Minnesota. (See notes on this species in *Arthur's Contributions to the Flora of Iowa*, No. VI.)

[Prof. Eaton writes that the *Marsilia* cited as collected by *Geyer* is the original of *M. mucronata*, *Braun*; but it is regarded by Prof. Eaton as a form of *M. vestita*, as at first determined by Dr. *Torrey*, differing from the ordinary type in having longer peduncles and less hairy sporocarps. *M. uncinata*, *Braun*, is found, according to Prof. Eaton, in Texas, Louisiana and Florida.]

SALVINIACEÆ.

AZOLLA, L. AZOLLA.**A. Caroliniana**, Willd. Azolla.

Lapham. [The range of this species is stated by Prof. Eaton in the *Botany of California* to be from "Oregon to Arizona, eastward to the Atlantic, and southward to Brazil."]

**MARSILIA VESTITA*, Hook. & Grev. Leaflets broadly cuneate, usually hairy, entire, 2 to 7 lines long and broad; petioles 1 to 4 inches long; peduncles free from the petiole; sporocarps solitary, short-peduncled, about 2 lines long, very hairy when young; upper tooth longest, acute, straight or curved; lower tooth obtuse, the sinus between them rounded. . . . Oregon to Texas. *Eaton* in *Botany of California*.

APPENDIX.

Since the date of the acknowledgments made on page 10, contributions to this catalogue have been received from Mrs. C. L. Herrick, of Minneapolis; Mr. A. W. Jones, of the state university; Mr. W. H. Kelley, of Saint Paul; and Mr. O. W. Oestlund, of Minneapolis. Three varieties of grasses, described by Dr. Vasey, are first published, with his permission, on pages 161 and 172. Mr. Kelley also supplied a copy of notes on the "Botany of Winona county," by J. C. Norton, M. D., printed in the *Winona Republican*, July 14 to Sept. 22, 1857, including a list of 211 species. Several of these are accessions to the foregoing catalogue, while for other species their known geographic range in this state is extended. Items from this source, and others sent by correspondents too late for insertion in their regular places, are as follows:

Nasturtium obtusum, Nutt. Water-Cress.

Winona county, *Norton*; Minnehaha falls, *Miss Butler*. South.

Cardamine rotundifolia, Michx. (Including *C. rhomboidea*, var. *purpurea*, Torr.) Mountain Water-Cress.

Winona county, *Norton*. Infrequent.

Arabis petræa, Lam. Rock Cress.

Winona county, *Norton*. [Ranging from southern Michigan to the shores of lake Superior, Isle Royale, and far northward.]

Hypericum perforatum, L. Common St. John's-wort.

Winona county, *Norton*. Infrequent. South.

Stellaria uliginosa, Murr. Swamp Stitchwort.

Fond du Lac, at west end of lake Superior, *Mrs. Herrick*. North.

Cassia Marylandica, L. Wild Senna.

Winona county, *Norton*. Infrequent. South.

Cassia nictitans, L. Wild Sensitive-Plant.

Lily lake, Stillwater, *Miss Butler*. Rare. South.

AMMANNIA humilis, Michx. Ammannia.

Lake City, *Gibson*. Infrequent. South.

Cornus florida, L. Flowering Dogwood.

Upper Mississippi river, *Garrison*; northern Minnesota, *Sargent's Catalogue of the Forest Trees of N. A.*; Ramsey county, *Winchell*. Rare. South.

Lepachys columnaris, Torr. & Gray, var. **pulcherrima**, Torr. & Gray. Lepachys.

Red river valley near Saint Vincent, *Scott*. West. [Differs only in having a part or even the whole upper face of the ray brown-purple; varies southward into more slender and branching forms, some with rays reduced to a quarter-inch. *Gray's Synoptical Flora of N. A.*.]

Quercus nigra, L. Black Jack or Barren Oak.

Southern Minnesota, *Sargent's Catalogue of the Forest Trees of N. A.*

ADDITIONAL LOCALITIES.

Nelumbium luteum, Willd.; in lake Pepin near Frontenac, *Miss Manning, Mrs. Ray.*
Cardamine pratensis, L.; Winona county, *Norton.*
Oxalis Acetosella, L.; Winona county, *Norton.* [Extending south in Michigan to lake St. Clair.]
Trifolium hybridum, L.; Minneapolis, *A. W. Jones.*
Desmodium rotundifolium, DC.; Winona county, *Norton.*
Vicia sativa, L.; Washington county, Minneapolis and Saint Cloud.
Spiraea tomentosa, L.; Winona county, *Norton.*
Myriophyllum heterophyllum, Michx.; West Saint Paul, *Miss Butler.*
Onothea fruticosa, L.; Winona county, *Norton*; Waseca county, *Miss Thrall.*
Berula angustifolia, Koch; Winona county (abundant in cold spring brooks, and most abundant in the coldest water), *Norton.*
Cephalanthus occidentalis, L.; Winona county, *Norton.*
Houstonia purpurea, L., var. *ciliolata*, Gray; Winona county, *Norton.*
Solidago ulmifolia, Muhl.; Rice county (rare), *Chaney.*
Ambrosia trifida, L., var. *integerrifolia*, Torr. & Gray; common in the Red river valley, *Leiberg.*
Helianthus hirsutus, Raf.; Rice county, *Chaney.*
Coreopsis trichosperma, Michx.; Saint Cloud, *Campbell.*
Lobelia cardinalis, L.; Owatonna, Steele county, *Chaney.*
Asclepias verticillata, L.; add: common southwestward.
Cycloloma platyphyllum, Moquin; bank of Cannon river, Northfield, Rice county, *Chaney.*
Chenopodium capitatum, Watson; Stockton quarries, near Winona, *Holzinger.*
Frælicia Floridana, Moquin; near Red Wing, *Sandberg.*
Polygonum Virginianum, L.; Ramsey county, *Oeslund.*
Dioscorea villosa, L.; Red river valley, *Leiberg.*
Sporobolus asper, Kunth; Minneapolis, *Oeslund.*

CORRECTIONS IN NOMENCLATURE.

Prof. C. S. Sargent has kindly permitted the perusal of proofs of his *Catalogue of the Forest Trees of North America*, a report soon to be published for the Tenth Census of the United States, according to which several changes in nomenclature are required by species in this catalogue, making them read thus: *QUERCUS OBTUSILoba*, Michx.; *Q. PRINOIDES*, Willd., (*Q. Prinus*, vars. *acuminata*, Michx., and *humilis*, Marshall); *BETULA PAPYRIFERA*, Marshall (*B. papyrcea*, Ait.); *ALNUS INCANA*, Willd. [only the type occurs here, while var. *virescens*, Watson (var. *glaucia*, Regel, in part), ranges from the Saskatchewan to British Columbia, and thence south in the mountains to New Mexico]; *ALNUS SERRULATA*, Willd.; and *ABIES BALSAMICA*, Miller. Of *Populus balsamifera*, L., var. *candicans*, Gray, Prof. Sargent writes: "Rare and perhaps unknown in a wild state; very common in cultivation."

REVIEW OF THE CATALOGUE.

The total number of plants, including both species and varieties, enumerated in this catalogue and appendix, is 1650, belonging to 557 genera, and representing 118 families or orders. Seven-tenths of the whole are exogenous: of which 480 are polypetalous, 512 gamopetalous, 149 apetalous, and 14 gymnospermous. Of the remaining three-tenths 427 are endogenous, and 68 are vascular cryptogams.

One-twelfth of this flora consists of introduced species, numbering 138: of which 120 are exogenous, 54 being polypetalous, 44 gamopetalous, and 22 apetalous; and 18 are endogenous. The twelve orders contributing most to this number are *Compositæ*, 18;

Gramineæ, 17; Cruciferæ, 12; Caryophyllaceæ, 9; Leguminosæ, 9; Labiatæ, 8; Polygonaceæ, 7; Solanaceæ, 6; Chenopodiaceæ, 6; Malvaceæ, 5; Umbelliferæ, 5; and Borraginaceæ, 5. One order and fifty-five genera are represented only by introduced species; leaving 117 orders, 502 genera, and 1512 species and varieties, occurring indigenously in this state.

Counting only indigenous plants, the twelve largest orders are as follows: Compositæ, 204; Cyperaceæ, 129; Gramineæ, 122; Leguminosæ, 62; Rosaceæ, 62; Ranunculaceæ, 45; Filices, 43; Orchidaceæ, 41; Cruciferæ, 39; Liliaceæ, 39; Scrophulariaceæ, 37; and Ericaceæ, 34; making 857, or nine-sixteenths of our native flora.

Again counting only indigenous species and varieties, the forty largest genera are Carex, 89; Aster, 34; Solidago, 28; Polygonum, 20; Ranunculus, 18; Viola, 17; Potamogeton, 16; Helianthus, 15; Juncus, 15; Potentilla, 14; Salix, 14; Aspidium, 13; Asclepias, Habenaria, and Panicum, each 12; Euphorbia, Quercus, and Scirpus, each 11; Aneimone, Rubus, Galium, Artemisia, Gerardia, and Gentiana, each 10; Erigeron, Vaccinium, Pyrola, Eleocharis, and Poa, each 9; Arabis, Hypericum, Astragalus, Desmodium, Ribes, Cornus, Cnicus, Trillium, Cyperus, Elymus, Equisetum, and Lycopodium, each 8. In thirty-one of these genera, including the first three, no introduced plant is found.

Of the 412 species in Sargent's *Catalogue of the Forest Trees of North America* [north of Mexico], 81 occur indigenously in Minnesota; but eight of these, though becoming trees in some portions of the United States, do not here attain a tree-like size or habit of growth, while forty-eight (mostly noticed on pages 13 to 15) become large trees, at least forty or fifty feet high. Besides these, about 125 indigenous shrubs belong to this flora, making its whole number of woody plants about 206. Two species of Smilax are the only endogenous plants in this number.

In the statements of geographic range northward, very important aid has been derived from lists by Prof. John Macoun, of plants found in British America north of Minnesota, published in *Reports of Progress of the Geological and Natural History Survey of Canada* for 1875-76, 1878-79, and 1879-80; from his *Catalogue of Canadian Plants; Part I. Polypetalæ*, published as a report of the same survey, in 1883; and from manuscript notes, communicated by Professor Macoun, respecting the divisions of the flora after Polypetalæ. Toward the east, south and southwest, similar aid was found in Wheeler and Smith's *Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Michigan*: 1881 (containing 1634 species and varieties, of which 1476 are indigenous);

COMPARISON WITH OTHER STATES AND WITH EUROPE.

ORDERS.	Gen.	I. g.	Sp.	I. sp.	Eu.	N. E.	Mich.	Wis.	Iowa.	Neb.	Cal.
Asclepiadaceæ...	2	2	17	17	.....	11	8	13	14	12	1
Oleaceæ...	1	1	5	5	.....	4	5	5	4	5	.....
Aristolochiaceæ...	2	2	2	2	.....	1	1	1	1	.....	.....
Nyctaginaceæ...	1	1	3	3	.....	.....	.....	3	3	2	.....
Phytolaccaceæ...	1	1	1	1	.....	1	1	1	1	1	.....
Chenopodiaceæ...	5	5	13	7	3	1	2	2	1	5	4
Amarantaceæ...	3	3	5	3	.....	1	1	2	3	2	1
Polygonaceæ...	3	2	33	26	5	21	24	22	19	19	9
Thymeleaceæ...	1	1	1	1	.....	1	1	1	1	.....	.....
Elæagnaceæ...	2	2	3	3	.....	1	1	1	1	2	1
Santalaceæ...	1	1	3	3	.....	1	2	1	1	1	2
Saururaceæ...	1	1	1	1	.....	1	1	1	1	1	.....
Ceratophylaceæ...	1	1	1	1	.....	1	1	1	1	1	1
Callitrichaceæ...	1	1	1	1	.....	1	1	1	1	1	1
Podostemaceæ...	1	1	1	1	.....	1	1	.....	.....	.....	.....
Euphorbiaceæ...	2	2	13	12	.....	4	5	9	10	9	2
Empetraceæ...	1	1	1	1	.....	1	1	1	1	.....	.....
Urticaceæ...	10	9	13	11	1	11	11	11	10	11	.....
Platanaceæ...	1	1	1	1	.....	1	1	1	1	1	.....
Juglandaceæ...	2	2	5	5	.....	5	5	5	4	4	.....
Cupuliferæ...	4	4	15	15	.....	14	12	14	13	13	1
Myricaceæ...	2	2	2	2	.....	1	2	2	2	2	.....
Betulaceæ...	2	2	8	8	2	8	7	6	3	5	2
Salicaceæ...	2	2	23	19	1	18	17	17	14	13	4
Coniferæ...	7	7	13	13	3	13	12	12	4	3	1
Taxaceæ...	1	1	1	1	.....	1	1	1	1	.....	.....
Araceæ...	4	4	5	5	2	5	5	5	4	4	.....
Lemnaceæ...	3	3	4	4	3	4	4	3	3	3	3
Typhaceæ...	2	2	7	7	4	7	6	5	4	4	3
Naidaceæ...	3	3	18	18	10	16	16	12	13	7	12
Alismaceæ...	5	5	10	10	4	8	9	6	7	7	4
Hydrocharidaceæ...	2	2	2	2	1	2	2	2	2	2	1
Orchidaceæ...	14	14	41	41	10	36	40	34	14	26	9
Amaryllidaceæ...	1	1	1	1	.....	1	1	1	1	1	.....
Hæmodoraceæ...	1	1	1	1	.....	1	1	1	.....	.....	.....
Iridaceæ...	2	2	2	2	.....	2	2	2	2	2	.....
Dioscoreaceæ...	1	1	1	1	.....	1	1	1	1	1	.....
Smilaceæ...	1	1	4	4	.....	3	4	4	2	2	.....
Lillaceæ...	18	17	40	39	4	25	34	31	25	32	5
Juncaceæ...	2	2	18	18	9	12	16	12	9	10	7
Pontederiaceæ...	2	2	2	2	.....	2	2	2	2	2	1
Commelinaceæ...	1	1	1	1	.....	.....	1	1	1	1	.....
Xyridaceæ...	1	1	1	1	.....	1	1	.....	.....	1	.....
Eriocalonaceæ...	1	1	1	1	.....	1	1	.....	.....	1	.....
Cyperaceæ...	10	10	129	129	37	105	113	95	69	92	39
Gramineæ...	47	42	139	122	30	89	96	92	79	89	43
Equisetaceæ...	1	1	8	8	6	6	7	8	4	8	3
Filices...	15	15	43	43	19	36	40	32	22	29	11
Opniglossaceæ...	2	2	5	5	4	4	4	3	2	2	2
Lycopodiæ...	1	1	8	8	5	8	7	5	1	2	2
Selaginelleæ...	1	1	2	2	1	2	2	2	1	1	1
Marsiliaceæ...	1	1	1	1	.....	.....	.....	.....	1	1	1
Salviniaeæ...	1	1	1	1	.....	.....	.....	.....	1	1	1
118 Orders....	557	502	1650	1512	290	1048	1210	1176	949	1091	335

G. D. Swezey's *Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Wisconsin*, forming chapter V in *Geology of Wisconsin*, vol. I: 1883 (containing 1473 species and varieties, of which 1337 are indigenous); J. C. Arthur's *Contributions to the Flora of Iowa*, numbers I to VI: 1876 to 1884 (containing 1210 species and varieties, of which 1097 are indigenous); and Prof. Samuel Aughey's *Catalogue of the Flora of Nebraska*: 1875 (containing 1718 species and varieties of phænogams and vascular cryptogams, of which

1648 are indigenous). Acknowledgment is also due to Mr. Arthur for valuable information and suggestions during this work.

The preceding table presents comparisons with the four state-catalogues mentioned; and also with the *Botany of California* (1876 and 1880; by Brewer, Gray, and Watson; 2894 species and 339 varieties, including introduced plants); with the flora of New England, as indicated by Gray's *Manual* (approximately 1364 species and varieties of native phænogams, 243 introduced phænogams, and 74 vascular cryptogams); and with the flora of Europe, so far as it is represented in that of the northern United States, also shown by Gray's *Manual*. From this table it appears that 290 species and varieties of the indigenous flora of Minnesota are also found native in Europe; 1048 in New England; 1210 in Michigan; 1176 in Wisconsin; 949 in Iowa; 1091 in Nebraska; and 335 in California.

In submitting this catalogue to readers, students and botanists, it seems desirable to repeat that it claims to be merely a report of progress in an unfinished work. It is hoped that its publication will incite all the workers in this field to increased efforts, so that the final report of this part of the state survey shall be made as complete and accurate as possible. The cryptogamic vegetation, as mosses, liverworts, lichens, fungi, and algae, will there be catalogued; and within the province of the present work, there will be incorporated additions and corrections, as well as extension or more exact limitation in statements of the range of species, so far as known. For this purpose, botanists are requested to keep full notes of all observations that supplement or amend this catalogue, and to send them, together with specimens of plants found in Minnesota but not herein recorded, to Prof. N. H. Winchell, curator of the state university museum, Minneapolis.

Probably about a tenth part of the total phænogamous flora of the state remains yet to be noted in neglected nooks, in marsh, dense woods, cool ravines, on cliffs and hills, in streams and lakes. Numerous species and varieties new to science quite certainly await discovery; and it will be interesting in many cases to compare our common and well known plants with specimens of the same gathered in distant portions of the country, or even in this region under differing conditions of soil, moisture, or shade. The greater part of the accessions must be expected, of course, near the borders of the state, being often species that are common or frequent beyond our limits but extend only scantily into Minnesota.

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THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.

N. H. WINCHELL, STATE GEOLOGIST.

58.19 (776)
8

CATALOGUE

OF THE

FLORA OF MINNESOTA,

INCLUDING ITS

PHÆNOGAMOUS AND VASCULAR CRYPTOGAMOUS PLANTS,

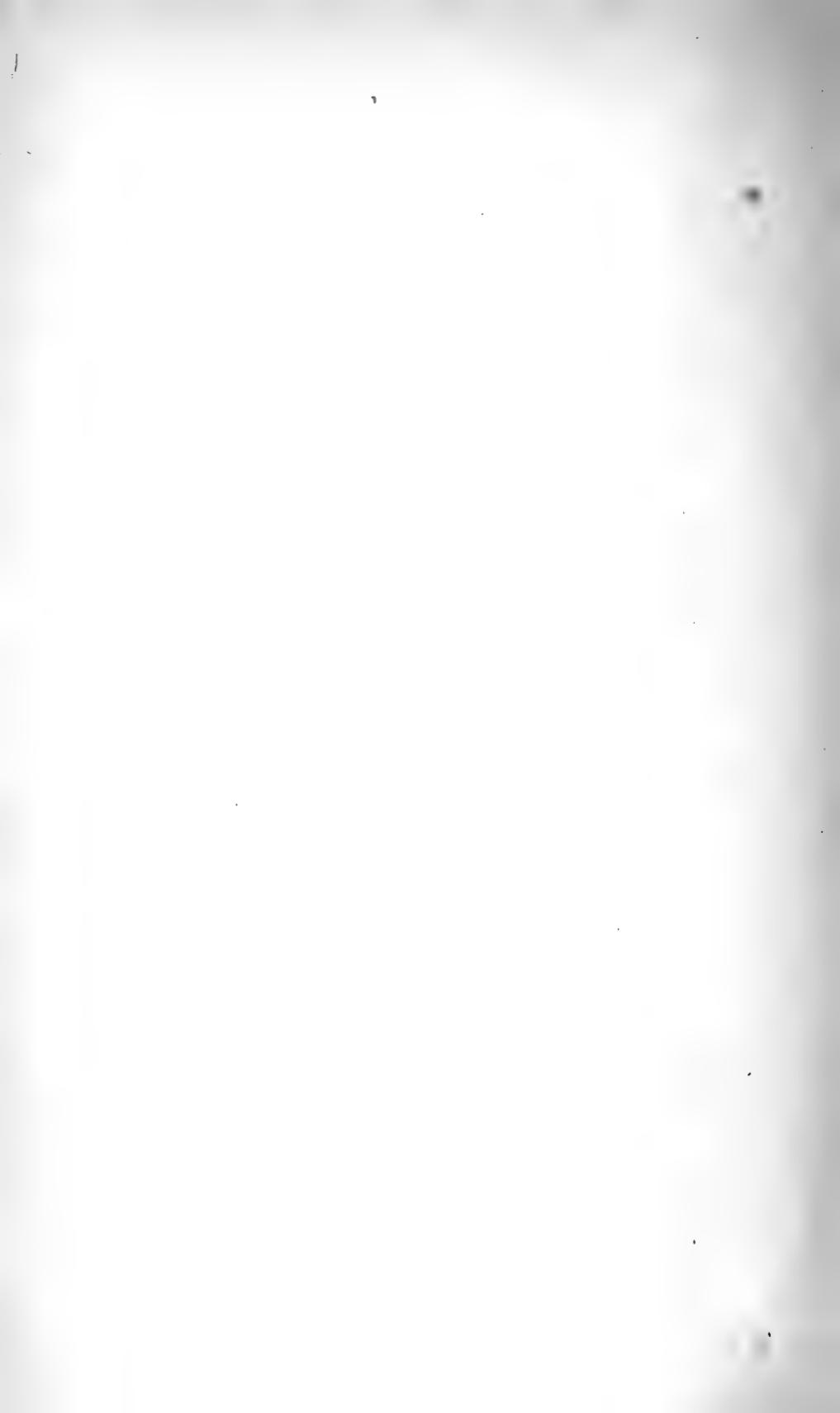
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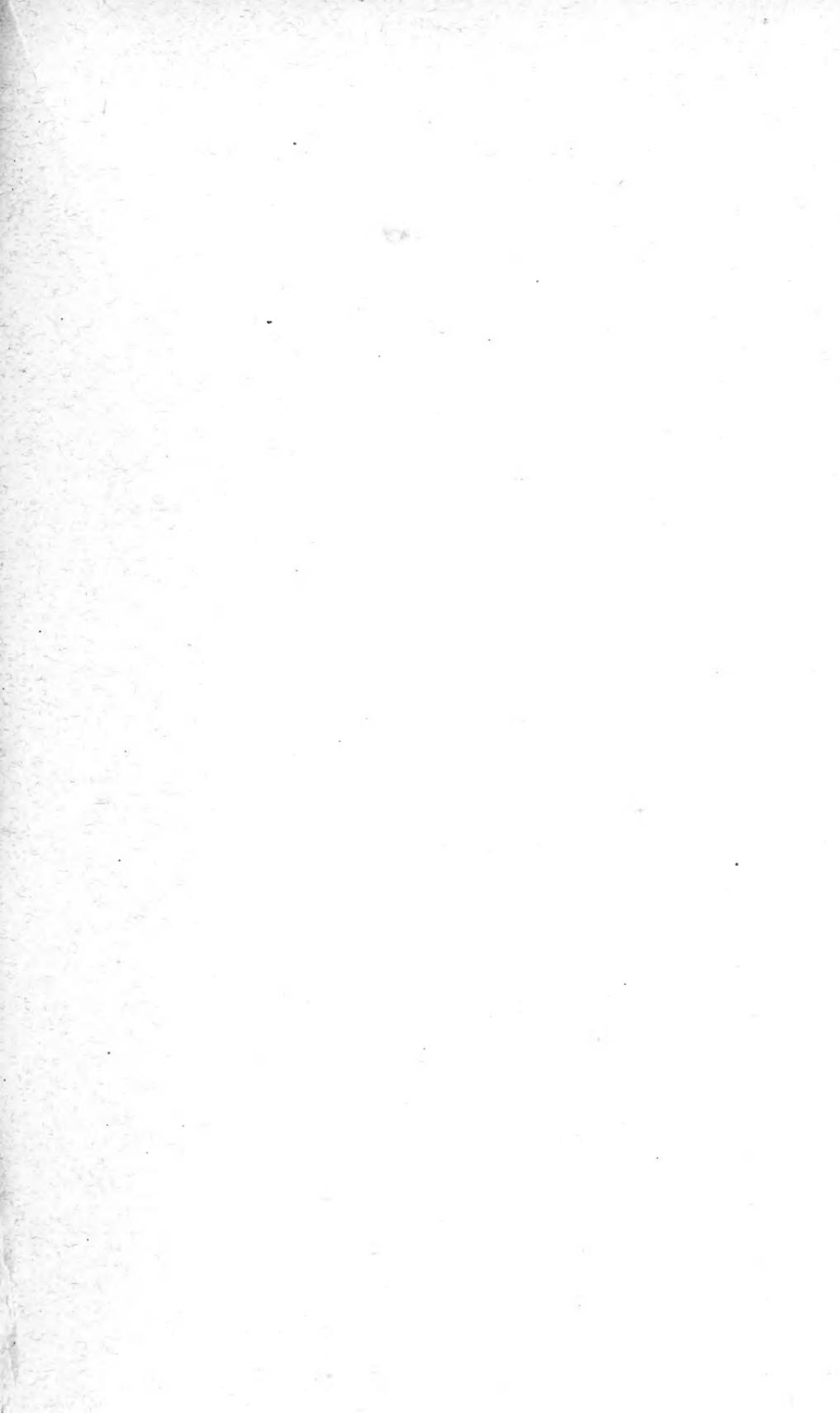
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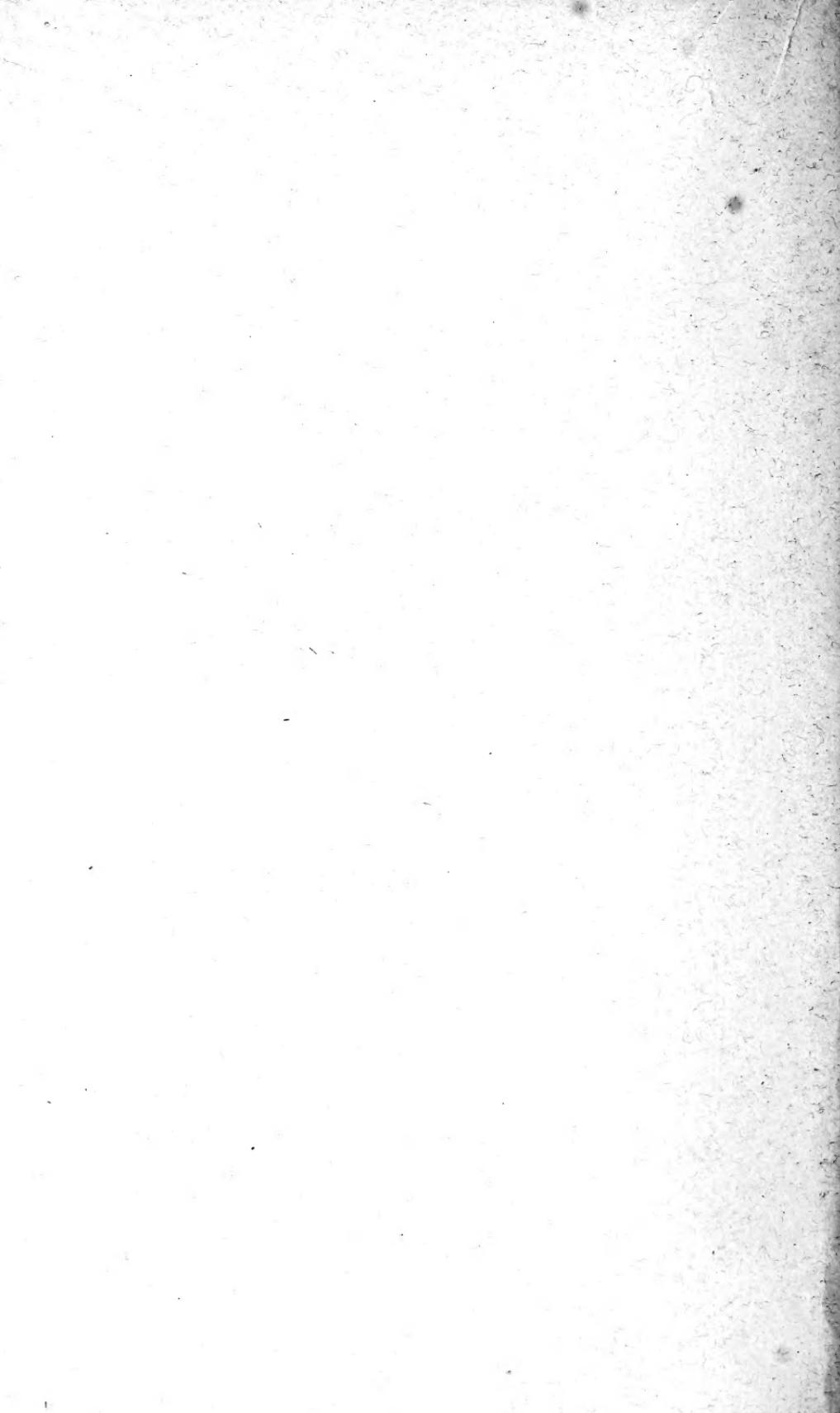
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